SOAP

JANUARY 1937

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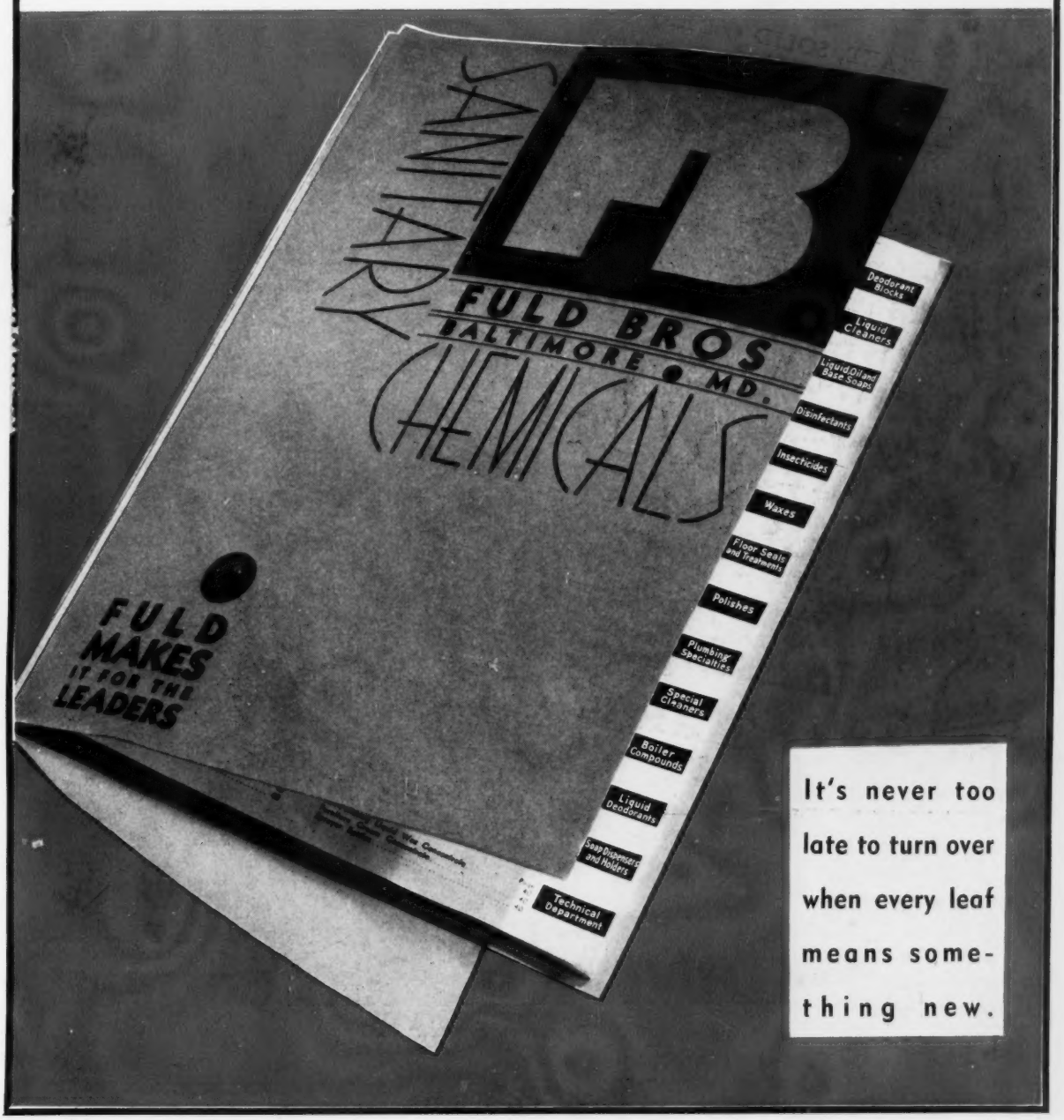

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SOAP

Volume XIII
Number 1

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January, 1937

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SANITARY Products Section, which is included as a department of every issue of SOAP, begins on page 79. Production Section begins on page 65.

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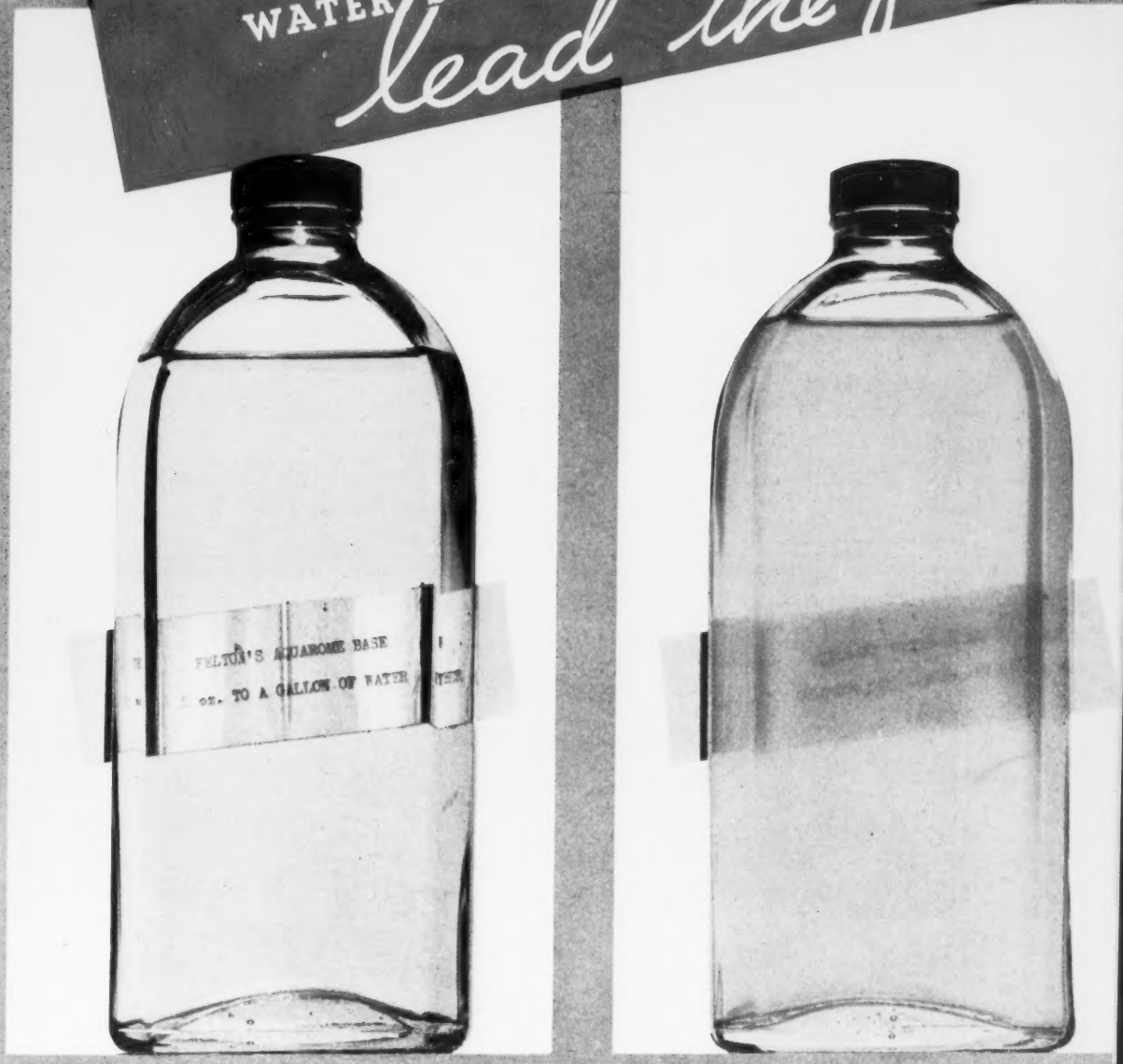

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National Association of INSECTICIDE and DISINFECTANT MANUFACTURERS Incorporated 1914

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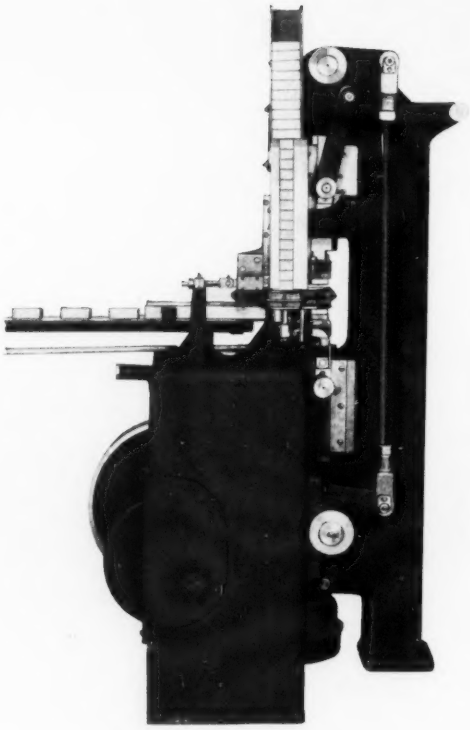

Type ET Toilet Soap Press

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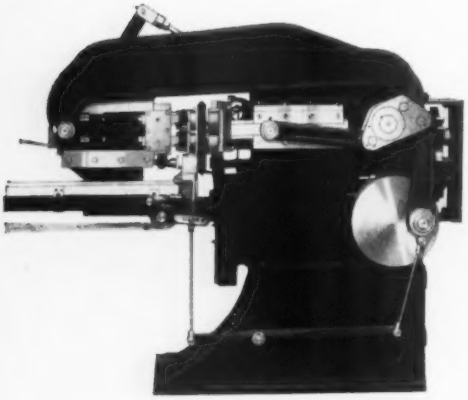
ARE TOGGLE OPERATED AND HOLD THE SOAP UNDER PRESSURE TWICE AS LONG AS EARLIER MODELS.



Type K Laundry Soap Press

MANY SOAP MAKERS ARE REPLACING EARLIER MODELS WITH THEM BECAUSE OF THEIR FAR BETTER PRESSING, GREATER PRODUCTION, ECONOMY IN DIE WEAR AND, LAST BUT NOT LEAST, BECAUSE THEY OPERATE

WITHOUT NOISE OR VIBRATION

R. A. JONES & COMPANY, Inc.

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The Standardized *Constant Motion Cartoner* packages bottles, jars, tins, collapsible tubes and many other articles. It feeds, folds, and inserts direction sheets and corrugated board liners with the loads.

As the editor sees it....

ATTENTION of the soap industry is focused on the fat market. It is the subject of the hour. Not only have prices moved upward in a fashion reminiscent of war days, but stocks of standard soap oils and fats are difficult to buy even at the high prices prevailing. Oils and fatty acids which could have found a market only with difficulty a year or two back, are today being eagerly sought after by soap makers. But the available quantities of these lesser-known oils are small, too small to be a factor in the present general shortage.

If there are coconut oil stocks of consequence in the tanks of soap makers, or coming forward to soap makers within the next sixty days, they are mostly in the hands of the larger manufacturers, and stated to be far below normal levels. The rank and file of small soapers are all reported short of coconut oil, far too short for comfort. Stocks of other oils have in many instances been bought up far ahead. Renderers are producing tallow and greases to the limit, but it is not enough. And this situation is not confined to the United States alone. A world-wide shortage of fats exists. Although this shortage has been developing for close to five years, its full force has only descended upon the American market within the past sixty days. And another sixty days of rising prices are altogether likely, judging from opinion in fat brokerage circles, before the peak is reached.

From the top to the bottom, the soap industry appears to be genuinely worried over the fat situation,—and the most stringent raw material situation which the industry has faced in many a year. The small soap maker sees himself very definitely "on the spot" and visions the possibility of being squeezed out of business within the next year or two as a direct result of the present fat scarcity. He is being forced to take those fats which he can get, and has little chance to choose. Those who recently have hesitated to buy because of what seemed high prices, have found to their dismay that prices a day or two later were still higher. Raw material prices have changed so rapidly that prices for finished soaps have been in a constant mix-up.

This is the position in which the average soaper finds himself today. It is a situation which dates back to the low prices and curtailed production of four or five years ago, at which time the danger signal was quite apparent to experienced fat buyers. But there was little that they could do about it, except wait for the storm to break. The excise taxes of 1934 and 1936 constituted a further forewarning of what might be expected in fat prices, to which American buyers apparently did not take heed.

What is the average soaper to do? As a measure of self-preservation, he should advance soap prices now directly in line with fat replacement costs. But will he do this? We doubt it. Soap qualities generally will probably be cut to the lowest possible limit. Every known method for cheapening soap will undoubtedly be resorted to. As a last resort, prices will probably be advanced about half of what they should be advanced. And with all this, consumers will turn away from soap to other detergents where possible, partly because of price and partly because of quality.

All in all, it is not a pretty picture, but nevertheless one which we believe is closer to the truth than most soapers like to admit.

BACK in 1932, with two-thirds of the rendering plants of the country shut down because of the low prices for tallow and grease, an editorial in SOAP had the following to say: "No matter what steps the renderer takes to relieve his position, the soap manufacturer is deeply concerned. It is not altogether unpleas-

ant for the purchasing departments of soap plants to find tallow and grease kicking around the market at previously unheard-of prices. But does this unhealthy condition of the rendering industry harbor a future menace to the soap maker? The shutting down of rendering plants is going to be felt by the soap industry sooner or later. . . . Those buyers of tallows and oils who have used the strength of their positions in an abnormally weak market to keep prices depressed to as great an extent as possible, have been working, we believe, to their own ultimate disadvantage. As we see it, the soap industry will probably be the chief contributor over a period of years in paying for present chaotic conditions among the renderers."

It would seem that soap makers are paying in a large way right now. Not only are they paying because of the scarcity of fats, but also because the renderers apparently had more friends in Washington than the soapers when it came to a legislative show-down.

A PROMINENT glycerine authority urges the soap industry not to cease its efforts to find new uses for glycerine. In spite of the present shortage of stocks and the inability of domestic producers to supply the demand, he sees the ever-present threat of a cheap glycerine substitute or of cheap synthetic glycerine itself. He points out that glycerine chemically is a relatively simple compound whose synthesis at low cost may not be far off. This development would, of course, mean the relegation of natural glycerine to the sewers, or an extremely low price, if the consuming horizon for glycerine were not broadened sufficiently to take care of both synthetic and natural production at a fair price.

Because glycerine is primarily a by-product which within reasonable limits can be sold for what it will bring, the market has on the whole over a period of years been low enough to discourage synthetic and fermentation glycerine research and production. It is during times like the present that new glycerine production will get its foothold if it is ever started. The higher the price of any commodity, the greater is the threat of new competition. And if such competition ever comes to the present glycerine producers, their ability to meet the situation will depend upon their readiness to do so. We can conceive of no better preparation for such an emergency,—although it may never come,—than the present research program of the Glycerine Producers' Association.

A RESUMPTION of a program of cleanliness teaching by the Association of American Soap & Glycerine Producers, even though it be on a much smaller scale than that which characterized the work of Cleanliness Institute some years ago, is to be commended. The distribution of cleanliness propaganda can only meet with universal approval. The fact that the ultimate object of the soap industry is to sell more soap through teaching cleanliness, does not in our opinion detract one iota from the commendation which this effort merits. We hope to see this work broadened in the near future, and also hope that whatever conditions may befall the industry in the future, the work will never be completely stopped again.

A WELL-KNOWN manufacturer of packaging machinery in New England calls attention to the fact that the Social Security Act, and state social security legislation, present added incentives for employers of labor to make further installations of automatic and labor-saving machinery. Referring to newspaper editorial comment that social security will become a boomerang to labor, and to the remarks of Mr. Norman Thomas that eventually "workers will rise up to curse it," the manufacturer in question points out that increased labor costs always tend toward greater mechanization of industry. And many manufacturers are already planning further installations of machinery to offset the added burden of social security taxes. So that which bears the label, "social security," may a year or two hence be the very means through which a percentage of workers will lose their jobs,—men replaced by "machines which need no security."

Polished Soap Flakes

By Joseph M. Vallance
London, England

The dried soap ribbons leaving the dryer en route to the flaking machines. Up to this point, the "polished flake" is just ordinary chip soap.

AS far back as 1892, soap in the form of thin leaflets was produced by means of the now historic Cressonieres drying plant. These early soap flakes, however, were intended only for the textile industry and their production was subsequently abandoned. Some years later the idea was successfully revived in England and Denmark. Nowadays, of course, the enormous popularity of this type of soap is firmly established throughout the civilized world. The demand for soap flakes has, in fact, far exceeded even the most generous estimates of its early sponsors, covering as it does flakes for laundry and household use, including an amazing variety of domestic requirements. Toilet flakes, under such names as lavender, lemon and rose-petal, are also experiencing considerable popularity.

Improvements in soap flake manufacture have mostly been due to improvements in plant, more particularly in the adoption of more satisfactory drying equipment and of the vastly superior "chocolate" type of roller mills. Soapmakers have mostly been quick to appreciate this, and consequently the general standard of soap flakes has risen greatly during the past decade.

Apart from official specifications, it is agreed that a good flake should be reasonably transparent, of homogeneous consistency (free from specks of crystallized soap, etc.), highly polished, pliable, and not immoderately prone to friability during or after packaging. In addition, it should be easily and rapidly soluble, and at the same time give a satisfactory lather.

The first factor to be studied is obviously the kettle charge. The raw fats entering into consideration are those used for a good toilet soap base, and the aim should be to produce a soap with maximum whiteness and pliability. The titer should be a little on the low side. Consequently an excess of hard fats should

be avoided, and a suitable proportion of soft fats and oils incorporated. Thus, up to 75 per cent of the charge can suitably consist of tallow alone, tallow and lard, tallow and a good grade of white skin grease, etc., most of the remaining 25 per cent being coconut oil in association with not more than 2 per cent of W. W. rosin and (possibly) a small quantity of castor, soya bean or other modifying oils.

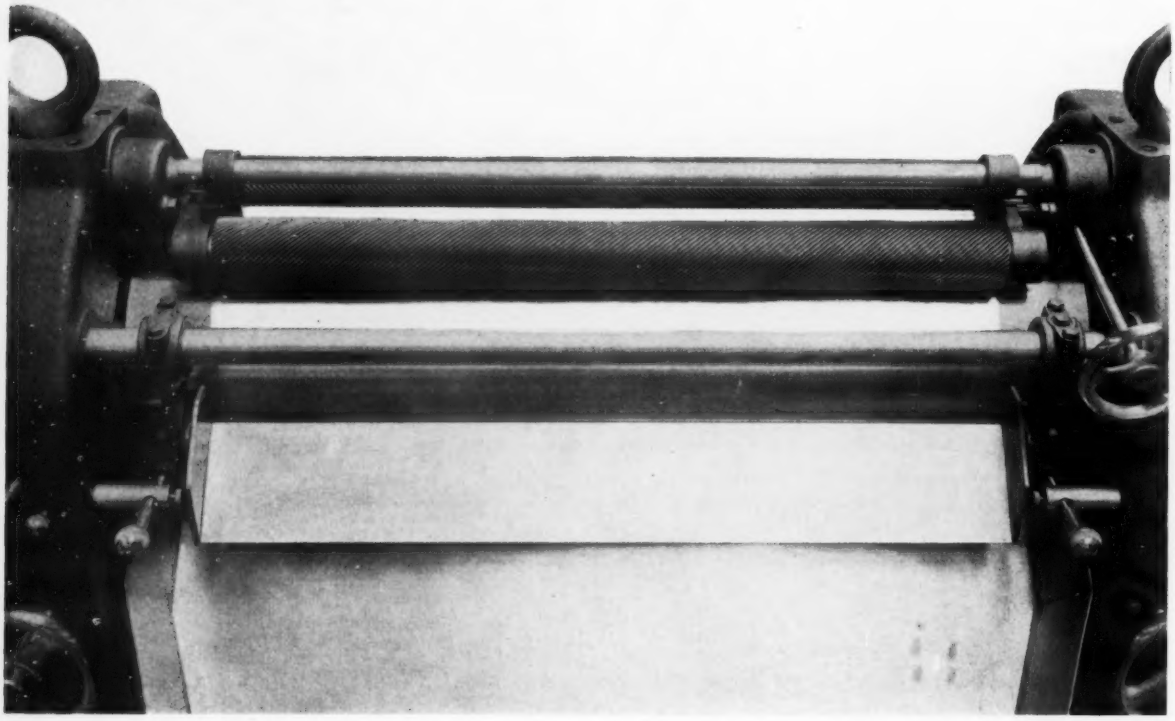
A personal preference has always been for mutton tallow, rather than beef, for though much has been written regarding the risk of rancidity when using mutton tallow, with correct boiling this should never occur. In the United Kingdom, white skin grease is finding favor with some makers, in preference to tallow, on account of its lower titer. For finer qualities, lard is used in conjunction with prime quality mutton tallow and coconut oil.

From 2 to 10 per cent of the comparatively expensive castor oil has been recommended (by Dr. G. Knigge and others), due to the fact that this is a very effective aid to pliability, but, in an otherwise properly made soap, such additions should be unnecessary. In fact, one of the commonest and in many ways the best method for ensuring a pliable and elastic flake is to incorporate from 10 to 12 per cent of white potash soft soap. This not only reduces brittleness to a minimum, but also increases the transparency of the resulting flakes and tends to make them more rapidly soluble.

Although the U. S. Federal chip soap specification appears to preclude the use of rosin in the fat stock, the addition of 1 or 2 per cent of the W. W. grade is common practice in the United Kingdom and on the Continent. The reasons for this are that the resulting rosin soap is thought to improve the texture and at the same time to act as a protective colloid and preventer of rancidity. The opinion has, in fact, been expressed that a much larger proportion of rancid flakes would be evident on the market, if most of them did not contain a small proportion of rosin soap.

Typical stock formulae, expressed in percentages, are as follows: (1) Finest white tallow 30, coconut oil 18, W. W. rosin 2; (2) Best white skin grease 60, tallow 30, coconut oil 10; (3) Tallow 65, lard 20, coconut oil 15; (4) Bleached palm oil 60, best white skin grease 10, finest mutton tallow 10, coconut oil 20.

It is also possible to use palm kernel oil, sesame oil and many of the hardened oils (provided these latter have been carefully tested to give an unblemished soap). In general it can be stated that most raw materials, save those that will make the resulting flakes too brittle or too prone to rancidity, deserve the flake maker's attention. Fatty acids are not suitable in this connection, owing to the fact that the small amount



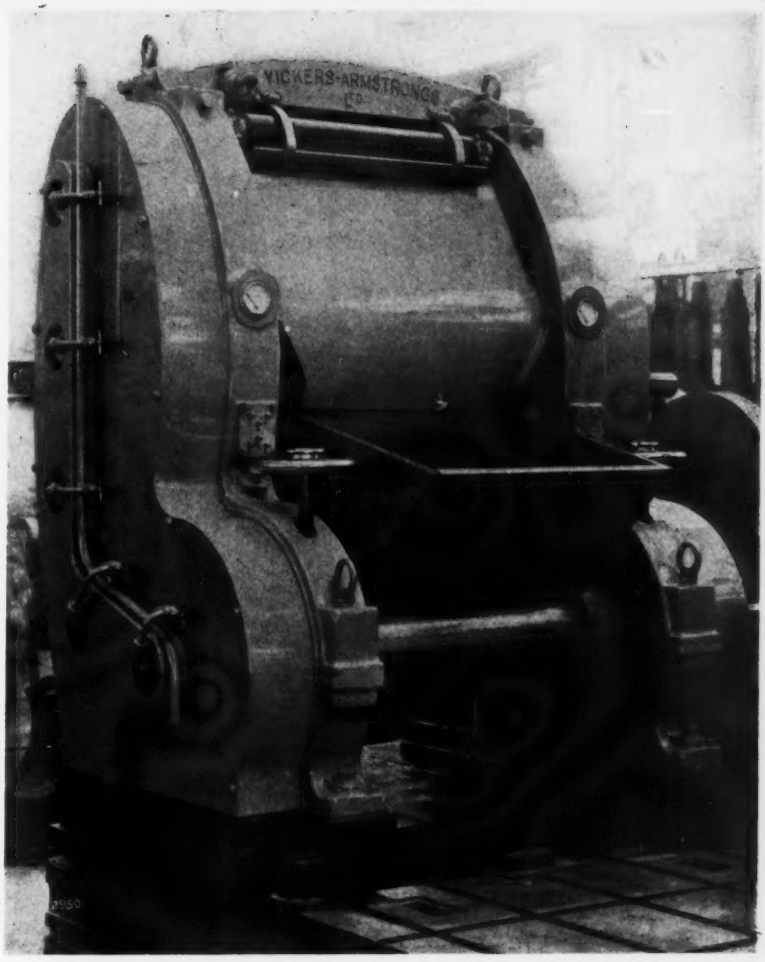
Close up view of the flake cutting rollers on a mill used for flake soap manufacture in England. Buhler Mill.

of glycerin retained by neutral fat soaps is of considerable assistance in enhancing the luster and transparency of the resulting flakes.

The great advantage of using a fairly mixed charge is that price fluctuations are not so liable to affect the quality of the soap when, for economic reasons, some adjustment has to be made in the formula. It should be remembered that tallow and palm oil soaps give a good lather in hot water but a very poor one in cold water, and for this reason coconut and palm kernel additions are essential, although too high a proportion of coconut oil definitely tends towards cracking and chipping. Thus for several reasons, the kettle charge needs very careful balancing.

Saponification methods vary somewhat but, generally speaking, the mixture should be boiled and finished as for toilet soap base, and subsequently chipped, dried and milled. In the fresh soap base, not less than 0.2 per cent free alkali should be present. This percentage is to some extent reduced during drying, and it is important (particularly with a rosin-free base) that it should not fall too low, as otherwise its protective action will be lost, and the soap flakes become liable to internal changes and rancidity. As to the salt content, this should be even more carefully controlled than in the case of toilet soap base, or an extremely brittle flake is likely to result.

Flakes "filled" with starch, carbonate and silicate, also those incorporating such additional substances as sodium hexametaphosphate, are rather outside the scope of this article, and cannot therefore be discussed here. In passing, however, it would appear that the hexametaphosphate holds considerable interest in the production of flakes of 70-75 per cent fatty acid, in view of the fact that such flakes show no falling off in lathering power, as compared with unfilled flakes of similar basic constitution.



Polished soap flakes of 1/1000 inch thickness can be produced on this mill, the newest type being adopted for flake manufacture in the United Kingdom. Vickers-Armstrong Mill.

FURTHER processing of the soap base into flakes is effected by various methods, according to the size and general scheme of the factory concerned. Undoubtedly the method gaining most ground in the United Kingdom at present is that in which the hot liquid soap is fed from a crutcher or insulated storage tank direct to a chilling roll, from which the solidified ribbon is scraped off by a knife-edge device in the usual way, and passed on by a continuous band conveyor to the hot-air drying and cooling chamber, and thence, of course, to the mills.

This straight-through, continuous, and eminently rational system is now used by practically every soap-works of importance, but an interesting variation is that in which the soap base from the kettles is allowed to solidify in frames, the slabs being then converted into crude chips by a mechanical chipping device, and the chips carried away by conveyor belt into a drying and cooling chamber, fitted up with eight or more moving bands, working on the tumbling-tray system.

Both methods possess characteristic advantages. The continuous process has obvious merits, not the least of which is the ability to cool and dry the hot soap uniformly, without permitting the center to be warm and plastic and the outside cold and dry. This naturally saves power (and money) during the sub-

sequent milling, besides favoring the production of more pliable, transparent and homogeneous flakes than would otherwise be obtainable. There is less likelihood, in a warm, uniformly dried soap of specks and hard spots appearing in the finished flakes.

On the other hand, it is not unusual to find rancidity occurring in rapidly-dried soaps of this kind, in cases where an excessive amount of unsaponified fat is present. This is doubtless due to the fact that further saponification of the unsaponified fat is prevented by forced or unduly rapid drying. Here, again, careful attention to the boiling and finishing operations should reduce this risk to a minimum.

In any event, it is perfectly true to say that the type of dryer used is relatively much less important than the type of mill. Although most soapmakers will readily agree that an inefficient dryer is worse than useless, they also agree that a perfectly satisfactory one is undoubtedly a great labor-saver. The chief points to observe are (a) that the drying and cooling are carried out to the desired temperature and moisture content and (b) that such action is uniform throughout each chip, thus avoiding overdried particles. A minimum working temperature of 28° to 30° C., according to titer, is essential in order to insure that the finished flakes are plastic, transparent and well polished. It is, of course, best to use the crude chips as soon as possible after drying.

It might be added that, in my personal experience, I have more than once found it necessary to make minor alterations and adjustments to dryers, in order both to save heat by redistribution of the warm air and also more effectively to control the moisture content and uniformity of the chips. As to superfatting, in cases where this is considered necessary, it is best to add the necessary materials (lanolin, petroleum jelly, etc.) in a preliminary mixer just prior to milling.

PROBABLY the most effective milling procedure is to feed the freshly dried chips or ribbons, either by hand or automatically, to a preliminary 3-roll (or occasionally a special 2-roll) mill, which serves to "break up" such chips before passing them on to the 5-roll finishing mill, equipped with a flake-cutting device. Some of the latest type English mills are very highly developed pieces of machinery, equipped with automatic lubrication as well as grease-gun nipples, and capable of an output of 15 cwts. per hour, in comparison with the usual 8 cwts. capacity of most other mills of a similar size. It is only fair to add that, numerically, the celebrated Continental mills continue to predominate.

The marked advances made in milling equipment have undoubtedly been responsible for most of the improvements in present-day soap flakes. Formerly very cumbrous 9-roller mills were in use, the speeds of the rollers successively increasing from an initial 60 ft. per minute to a final 250 ft. per minute. Obviously, the power required to gear up all these speed variations and to drive nine extremely heavy rollers was abnormally high. In addition to this, it was impossible to mill the resulting flakes to less than 5/1000 inch in thickness, or to prevent them being opaque and brittle.

Subsequently, about twelve years ago, the "chocolate" type of mill came into vogue, and has since held the field for efficiency as well as economy. Thus, many of the mills described in textbooks and formerly in common use, are now completely outdated. Modern water-cooled steel roller mills carry out all the heavy work on the low-geared rollers and though easily capable of producing 2 to 3/1000 inch-thick flakes, they are at the same time less drastic in their action on the soap film, and much more capable of producing a thin, transparent, pliable and highly polished flake.

Even in small factories, a good mill is capable of producing excellent flakes, particularly if the batch is restricted to not more than 2 cwts., for in that case the chips can be twice milled before getting cold. In direct contrast to toilet soap procedure, a second or even third milling is desirable, if a high degree of transparency and gloss is required. This, however, is usually obtained by using a preliminary mill for "breaking up" the chips, as previously described.

The thickness of the flake depends largely on the setting between the first and second rollers. These do most of the work, the remaining rollers, successively increasing in speed, supplementing their action and continuing to spread the still plastic soap film. A considerable amount of skill is called for in keeping the rollers accurately adjusted. The first and second rollers being carefully set, the others should more or less float upon one another, exerting just sufficient pressure to transfer the soap film and continue to spread the soap over the periphery surface.

The feed to the mills must be carefully regulated, while the temperature of the rollers is also important, especially in regard to the production of transparency in the finished flakes. While flake mills are of the water-cooled type, the cooling water should not be run through fast enough to chill the soap. In fact, it is not practicable to produce really good, pliable, glossy flakes unless the soap is kept warm by means of maintaining the rollers at a comfortable heat, with each roller slightly warmer than the one preceding it.

Cutting and scoring devices have been improved upon considerably during recent years, and minor advances have also been made in the automatic returning of waste to the mills. These improvements can be better gauged, however, by an individual study of the various mills available on the market. It is sufficient here to add that there have

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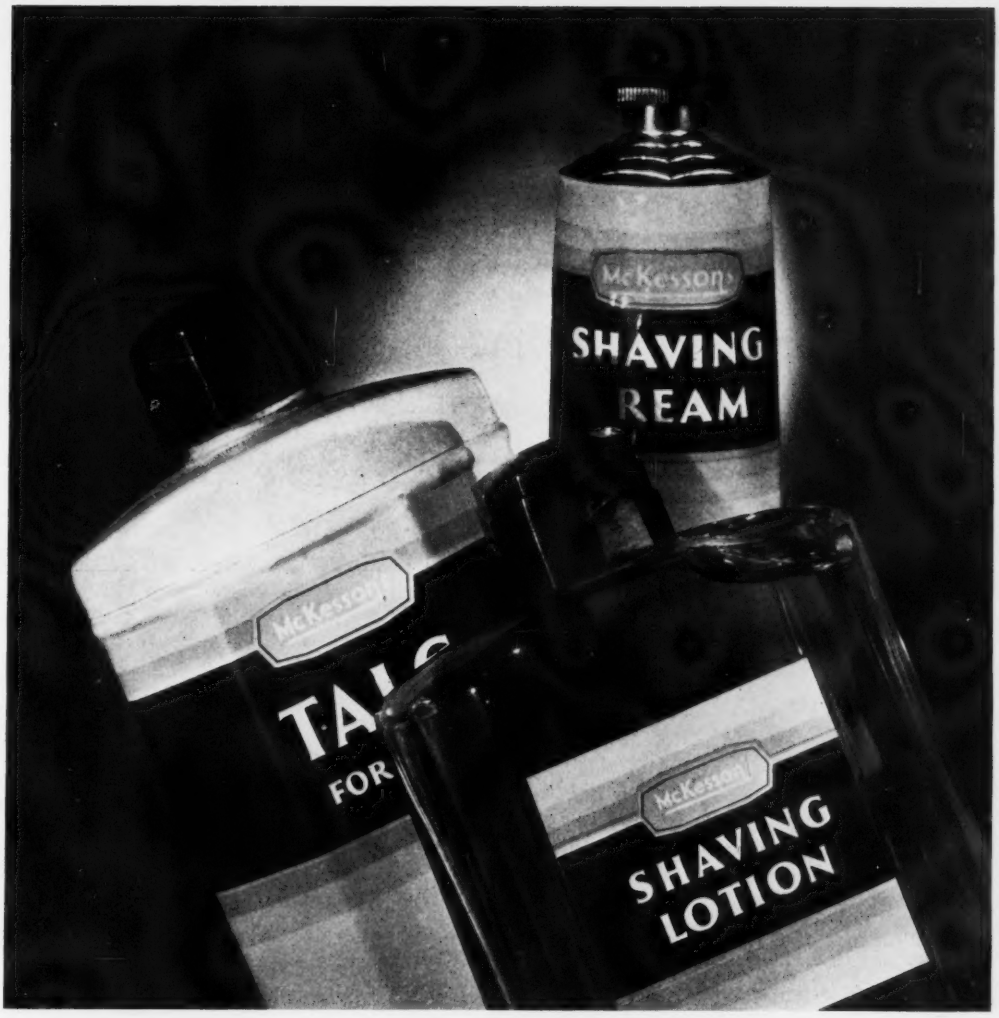


Shaving Accessories

By Ralph H. Auch
American Products Company

IN the course of a talk before a convention of technical men sometime ago, I happened to refer casually to the ever widening use of cosmetics by men. Several newspapers and trade journals in misquoting me stated that men are today using more cosmetics than women. This, of course, is inaccurate. What was actually said is: "The male, whatever his motive and secretive though he be, is using more of and more varied cosmetics."

While this discussion will be confined to shaving accessories, the cosmetics that are being sold largely to men will be enumerated to emphasize their importance. For the hair, men may use shampoo, liquid hair dressing, pomade, brilliantine, hair tonic, mange remedy or eau de quinine. For the bath are included bath salts, bath soap and, particularly in the summer months, bath or body powder may be employed. For the feet, men use perhaps as much of and as many preparations as women, among them, foot soaps, corn remedies, foot balm and foot powder.

For shaving may be included preparatory creams, the various shaving creams and soaps, styptic liquids, cotton or pencils, after-shaving lotions, lilac vegetal or bay rum and men's talc. Among the miscellaneous items occasionally used are manicure specialties, underarm deodorants and even powder puffs, which, incidentally beat the ends of towels fifty ways and contribute to domestic tranquility as well.

Two relatively feeble at-

tempts, one by a cigar chain and the second by a sporting goods chain have been made to merchandise toilet requisites by, for and to men. Indications are that the hair tonic and hair restorer business, so long large and lucrative, will suffer a distinct set-back when the hair growing machine of considerable proven merit gets into production under its excellent sponsor. One of the largest hair specialty merchandisers does not think so for she has only recently launched a hair treatment line formulated, designed and packaged especially for men.

However, whatever the outcome of men's toilet requisites in general, the outlook for shaving accessories in particular is good. They are natural companion products for shaving soaps and creams, whether the latter be of the lathering or latherless type. If a given shaving soap or cream has won a man to its regular use, it requires but little persuasion to have him risk his loose change and his chin on the after-shaving lotion and men's talc or other minor accessories.

That requisites for shaving will ever have their market swept away is most unlikely. This statemen is based upon the development of a nationally sold depilatory years ago and a casual following of developments since. To be more specific and advance a bit of the copywriter's "reason why": A depilatory's effectiveness depends upon its hair dissolving ability. The epidermis, or horny outer layer of the skin is quite similar to hair in composition. It follows then that as a depilatory application is removed, a portion of the skin is also softened and removed.

In the case of a woman removing hair with depilatory from her legs or axillae, or her upper lip or chin for that matter, she doesn't likely repeat the operation for a period of days or even weeks. In the case of a man who removes his beard growth daily and on occasion twice in one day, sufficient time for the regeneration of the epidermal layer of the skin does not elapse.

Accordingly, depilatory used at infrequent intervals will be applied to a thick epidermal skin that is non-sensitive. Used at short intervals to replace shaving, only a thin epidermal layer protecting the more delicate sensitive layers underneath is encountered. If while the hair is being depilated, the thin skin is broken or is dissolved in spots, irritation is bound to result.

Various attempts to protect the skin during depilation have been made with the aid of astringents or mild tanning agents. Such attempts have been pretty uniformly unsuccessful because in protecting the skin, the beard has also been partially protected, which results in uneven depilation, a sort of dull-razor-blade effect with no opportunity to go over it a second time.

Before hastening back to the subject, the problem will be stated to add weight to the original premise that was the reason for this digression in the first place. A depilatory suitable and satisfactory to replace shaving would have to act selectively on the beard and not on the skin. That such a material will ever be found is possible but not probable.

After-Shaving Lotions

ALL manner of lotions have been offered in the past for after-shaving, but today all have at least one thing in common, namely, clarity. Clarity necessitates a simple solution, so emulsions both saponaceous and gummy are out. Clarity has become an obsession, hardly a magnificent one but certainly a capitalized one. Quite a number of commercial lotions carry but one label, the front of which is the face label and the back, pasted to the bottle, serves as the direction label and must, of course, be read through the bottle and its clear contents.

While thinking of labels, if the following requisites or attributes of a good lotion are met, they may be re-stated as claims and should make good promotional copy. Only one caution is advanced, with the present attitude in Washington of the powers-that-be, the words "antiseptic" and "germicidal" should be omitted even though the product possesses such properties. Neither claim is indispensable saleswise.

The product should be actively antiseptic and mildly astringent, if not mildly styptic. Thus it will ally any irritations and check any blood flow caused by the razor and prevent infection. In addition, the astringency will help close the pores and if a man's idea of a good lotion can be expressed in a word, it is "a tight, smooth feeling."

If slightly acid, it will neutralize any residual alkalinity from the shaving preparation. If a mild anesthetic is incorporated, it will soothe by desentitizing the nerve endings. A cooling effect may also be incorporated. If hygroscopic, the lotion will cause the skin to remain soft and supple rather than become dry and harsh. And now suggestions for building any one of many satisfactory formulas. The antiseptics that may be used are numerous

and include oxyquinolin sulfate up to 1 per cent, chlorothymol up to 0.1 per cent, menthol or thymol up to 0.2 per cent or sodium salicylate up to 0.5 per cent. Two widely sold lotions were found upon analysis to contain the latter.

To render the product astringent, two lines of attack are possible. Either alcohol in rather high concentration or a chemical astringent may be used. The chemicals and approximate concentrations that have found application include aluminum acetate 1 per cent, aluminum chloride 0.25 per cent, alum (usually the potash) 0.75 per cent, zinc sulfate 0.1 per cent, zinc phenolsulfonate 0.75 per cent, and betanaphthol benzoate 0.1 per cent.

Then there are the acids that are mildly antiseptic as well as rendering the solution acidic, boric 3 per cent, and lactic, citric or phosphoric, each in about 0.2 per cent. Three of the largest selling brands are slightly acid.

The use of chemical astringents is fraught with some danger in an after shaving lotion due to its frequent application. Whether the astringent action is produced by the precipitation of the protein, by the extraction of water from the tissues or constriction of the arterioles, hardening or scarification of the skin or choked pores may result. Alcohol, though more costly, is largely relied upon in commercial lotions for astringency, augmented by low concentrations of one or another of the chemicals. Analysis of five brands, disclosed alcohol concentrations of 41 to 56 per cent.

Work on special astringents for women's use indicates about 60 per cent alcohol as the optimum, although some run as high as 70 per cent. These are used on the unbroken skin at infrequent intervals to exert a very active astringent action. After shave lotion should obviously be lower, in fact, it is better to err on the

low side, so 50 per cent probably should not be exceeded. Specially denatured alcohols Nos. 40, 39-B, 38-B, 39-A and 39-D, in the order named, are perhaps the most suitable.

Phenol in concentration of 0.5 per cent or less is perhaps the most convenient ingredient to allay itching and irritation. If used, a little higher concentration of perfume to cover it is required. Menthol or oil peppermint are often used to impart the cooling sensation.

Glycerine is a useful addition in concentrations of 2 to 5 per cent, although as high as 10 per cent has been observed in published formulas. The latter figure is excessive, particularly if the lotion is simply patted on and not wiped off as a certain percentage of users doubtless employ it.

As for colors, they are usually offered in various shades, from amber to a light green. The usual soap colors are likely to prove suitable in most formulations. A convenient amber shade is imparted by ferric chloride that also possesses astringency, but it tends to stain and, of course, turns purple if a salicylate is among the ingredients.

After Shave Talcs

WHILE perhaps the best name for powder for use after shaving is "Talc For Men" it should be more than a mere talc. Tinted and scented talc alone leaves much to be desired both in covering power and adherent properties. In addition, it may well be mildly antiseptic and, like the after-shaving lotions, slightly acid to neutralize any residual alkalinity from the shaving soap, since many use talc who use no after-shaving lotion. It even may be deodorant, in which case is use may be widened to include the axilla and groin.

Obviously, after-shave talc should possess less covering and adherent power than milady's face powder. Some are deficient in this attribute, however. This is evidenced by the fact that some men use any face powder available in the household, either alone or mixed with their very own talc. Covering power is obtained by the incorporation of zinc oxide or an equivalent quantity (about 1/3) of titanium dioxide. Since both impart a sort of drag to the powder on application, the latter may be favored because less is required for any desired covering power.

Adherence may be imparted by the use of the insoluble soaps, either magnesium, calcium or zinc stearate, the latter being favored. Either makes the finished product more perspiration (water) resistant in direct proportion to the percentage employed. Boric acid serves at once to render the powder slightly acid and also slightly antiseptic.

The odor should be one that is not too lasting i.e., not too well fixed and should be very sparingly used. Generally 0.15 per cent to 0.30 per cent is ample. The perfume should be well diffused in the powder. The most convenient method is to pot mill or otherwise intimately mix the perfume compound in nine or nineteen times its weight of talc. Then age the mix in metal containers for a period of weeks before incorporating it in the batch proper. Magnesium and calcium carbonate have long been used to diffuse the perfume but fairly exhaustive tests indicate talc of a high degree of purity is equally good, if not better for the purpose.

The powder may well be ighly tinted. In fact, if one general criticism of commercial products were to be advanced, it would be that men's talcs are not tinted highly enough. In bulk they appear dark enough but upon application in a thin film, they are only "off-white" and needlessly visible on the swarthy skin of the average male. Natural ochre has been largely used but, at best, it imparts a dirty, dingy shade. Synthetic ochre, requiring only about one ounce for every pound of natural to obtain a given shade, results in a much cleaner, more brilliant powder. It may be toned toward the brown side by burnt amber or burnt sienna and toward the red with traces of red toner or venetian red.

Uniform distribution with freedom from color spots can only be obtained by a preliminary milling of the color with a part of the talc. Repeated screening and bolting generally proves inadequate. To obviate this, dyes, both water and alcohol soluble have been employed for tinting both face powder and men's talc. This is not looked upon as good practice. Yet, three among the better known men's talcs were found to contain water soluble dye. One was a vivid yellow, a second flesh and a third a yellowish amber.

Careful choice of raw materials is vitally important. For example, the stearate can be no better than the stearic acid from which it was manufactured. To avoid the development of off-color and odor with age, the stearate should be suspended in water, acidified, boiled and the separated stearic acid checked for absence of color and odor and for high titre. Tests of the suitability of talc are largely physical although the amount of acid soluble substances present is of considerable consequence. Briefly, the talc should possess good "slip," be low in gritty or over-size particles, have a low apparent density, contain few, if any, mica "shiners," be low in acid soluble salts and be nearly, if not, white.

Innumerable formulas obviously could be advanced. There is little or no agreement among manufacturing merchandisers on what constitutes good formulation, however. The shades offered vary from off-white through the yellows, to flesh toward the orange or pink side and amber on the yellow side. They vary in water resistance from nil through slight to appreciable. In reaction they are usually acid with a few about equally divided between neutral and alkaline. None observed

contain a deodorant ingredient or make deodorant claims.

Deodorant properties may be readily imparted. Suggestive of the possibilities are zinc phenolsulfonate 2 per cent, zinc peroxide 0.5 per cent or betanaphthol benzoate 0.1 per cent. Chloramine up to 0.25 per cent is also reasonably satisfactory as it has a phenol coefficient of about 50. (Incidentally, this is chloramine, not dichloramine.)

A formula follows which may be the basis for any modification to get any desired effect:

Titanium Dioxide (or equivalent of Zinc Oxide)	0-3
Zinc Stearate	2-4
Precipitated Chalk (or other absorbent)	0-20
Boric Acid, Powdered	0-5
Talc	98-68
Color	q.s.
Deodorant (if desired)	q.s.
Perfume	.15-.5
To Make	100

Other Accessories

BEARD softening preparations or preparatory creams have not become popular. The best known one has been obliged to change its appeal from that of a preparatory cream to one to be used as a brushless shave. Even so, one survey shows it enjoys only 5.2 per cent of the call among brushless cream users who total only 19.4 per cent, which makes the product enjoy only approximately 1 per cent of the total sales. In composition they are usually vanishing creams or brushless creams plus a little phenol.

This is a reaction obtained from a study of the market. This conclusion was reached in spite of the fact that at Mellon Institute, it has been determined that adequate facial preparation for shaving is a necessity. There a sort of a shaving clinic has been maintained for three years and results which are to be published will define the scientifically correct preparational procedure to be followed to insure a satisfactory shave and to prevent razor blade damage. In the meantime, as this writer has stated before in these columns, shaving cream directions may well include a vigorous soap and water scrubbing. Thus the grease accumulation from the sebaceous glands that retards softening of the whiskers by the lather, and gritty street dust that dulls the razor, are removed.

The demand for styptic pencils is approaching the vanishing point. Since they are tricky to make and very cheap to buy in bulk, it is probably well to let the specialists make them under one's own label. Styptic cotton or styptic solutions may possibly lift the styptic out of the commonplace but that is problematical.

Bay rum and lilac vegetal, other than for barbers' use, are other items that have largely been replaced by after-shave lotions. Massage creams also appear to have had their day although barbers still offer massage to the modern beau brummels. In composition they have either a casein or starch paste base suitably lubricated, tinted and scented.

Someone may some day have the courage to launch a "he-man" toilet soap. The thought has interested this writer a long time. The male must be pretty well fed up on using soaps ostenibly designed to impart that "school girl complexion" or "the skin you love to touch." Surely he hasn't, or will not admit he has "cosmetic skin," and doesn't aspire to have roses or apples in his cheeks.

The lines along which such a soap would be built is at best a guess. It would likely be white or amber of convenient shape and carry very little odor and would not suggest the boudoir. It might be offered in a shell of water-proof material to serve as its own soap dish. Thus the man could park it in the medicine chest out of the way of the women of the household. If such a container with transparent wrap is prohibitive in cost, any one of the usual sales promotion schemes, making it easy for him to secure a practical suitable receptacle could be employed.

This leaves only the shaving kit to be touched upon. The kit is no longer a holiday season item for the dealer to have to break up and sell the packages singly later. If not too elaborate and if confined to the necessaries, and if offered at a slight concession in price under the same items purchased separately or singly, it should go over. This anticipates the sizes of the items to be carefully worked out so that all would become exhausted at about the same time.

What Is A Man's Odor?

IT is anyone's guess what constitutes a man's odor. He has come to accept lilac and rose, it is true. However, with barber supplies perfumed with lilac from straight terpineol and rose from straight geraniol, it is hard to associate them with quality. Some manufacturers, judging from their products, feel that it should be a spicy rather than a floral odor. Whatever it may be it should be fugitive so that the user leaves the most of it in the bath room and does not carry it to the office, the dining or the ball room.

What's In A Name?

AFTER-SHAVING Lotion is a good name since it is explicitly descriptive. There is little likelihood of men being educated to or finding for themselves many other uses for the product that might tend to bring them back for the next bottle a little sooner. A coined name, such as "Aqua Velva" and "Skin Bracer" may always be employed of course but then, however, the name as well as the product has to be put over.

On the other hand "After Shaving" Talc if called "Talc for Men" is likely to be more freely and frequently used. Copy suggesting its use for purposes other than for after-shaving is not out of place. It may include: Use after shower or tub, to soothe sunburn and slight skin irritations, dusting into shoes before hiking, indulgence in dancing or

(*Turn to Page* 77)

The Fat Situation

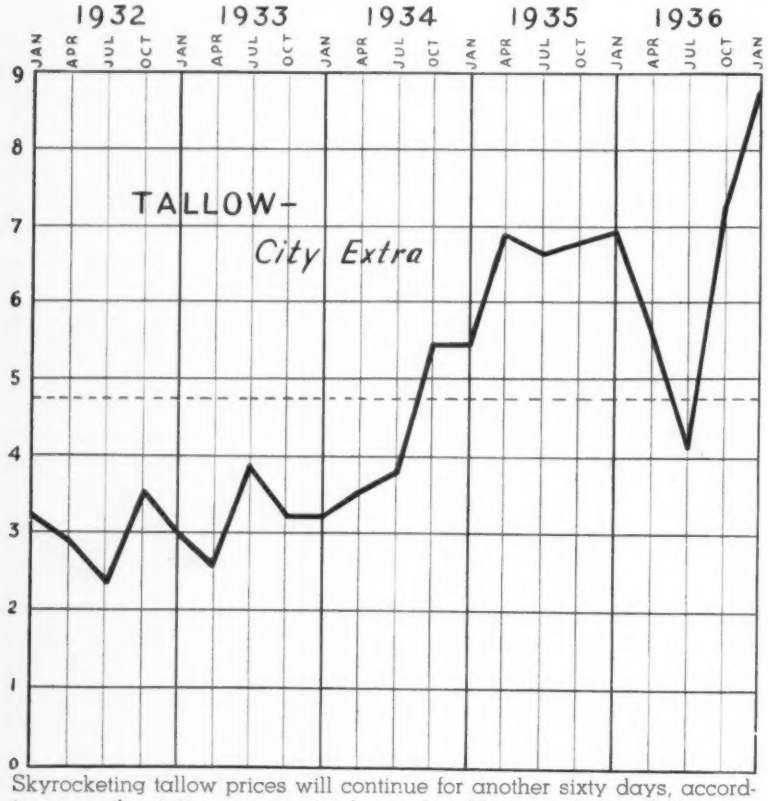
THE situation currently confronting the soap maker in the fat and oil market is unprecedented in recent years. With coconut oil on a nominal basis at twelve cents a pound (including tax), tallow at nine cents, linseed oil about the cheapest oil available in any quantity, and edible olive oil selling at the same price as the commercial grade, it is no wonder that the buyer of fat for the soap kettle is much disturbed and considerably mystified by the present situation, and greatly concerned as to the future course of the oil and fat markets.

The basic factor back of the present situation is a world-wide deficiency of fats and oils. The discouragement of production as a result of the low fat prices during the depression, the droughts of recent years, the hurricane a few years back in the Philippines, all are now making their effects felt on the supply side of the market. It takes a long period for supply conditions to adjust themselves in the fat market, and fat users are finding now that world fat production, geared to depression lows, cannot be adjusted quickly to supply a world population which has made an economic recovery, and greatly expanded its fat consumption.

This tremendous increase in fat consumption is a fact of prime importance in interpreting the present oil and fat situation. During the depression, Europeans particularly cut down the fat content of their diets, fats being distinctly a luxury in their scheme of life. Now that recovery has come, they are clamoring for more fats and helping materially to create a great excess of demand above supply. In the mind of one particularly well-informed follower of the international fat market, this is perhaps the most important factor in the present situation.

Another delayed influence which is just now being felt to the fullest extent is the Philippine typhoon of a few years back. The storm wrecked a substantial percentage of the coconut palms, and as new plantations cannot be developed on short notice, the productive capacity of the Philippine copra industry is distinctly limited. The current coconut crop on the surviving trees is reported small, which adds further to the stringency. So serious has the acute shortage of copra become, that it is reported that several of the large Philippine mills will close down in January,—an unprecedented situation.

To pass on to other developments in primary markets, it is worth noting that Russian cotton oil and sunflower seed oil cannot be counted on this year to supplement the American cotton oil supply. Crop failure in Russia and increased domestic demand will keep these oils at home and further reduce the normal American supply. Nor will there be any exports of English cotton oil this year, made from Egyptian seed, as this entire stock will find use in England. Another factor, which has been over-emphasized by some, is the war threat hanging over Europe. Nevertheless, Germany learned her lesson in the world war when she was starved into submission by a shortage of the fats among other things, and seems intent now on building up her stocks at home. With the munitions industry booming, there has been added demand for fats from this direction, as a source of glycerine.



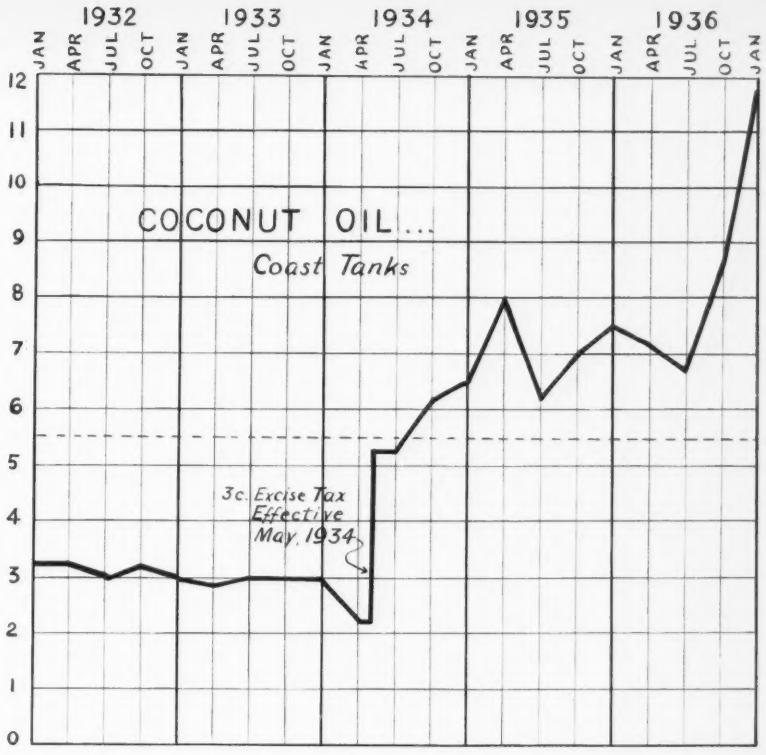
Skyrocketing tallow prices will continue for another sixty days, according to authoritative opinion in the trade. No immediate relief of the scarcity is seen.

TO all these primary factors must be added the secondary legislative developments to get a composite picture of the American oil and fat market. The excise tax of 1934 was the first important move to raise the price of domestic oils and fats by legal steps. As soon as the taxes were imposed fat and oil prices started upward, but early in 1935, they moved downward again. Loopholes had been left in framing the original law, and it was found that heavy stocks of tallow and various fatty acids were being imported for soap use. Tax-exempt fats were being substituted wherever possible and the result was a partial nullification of the first effect of the 1934 tax law.

These loopholes were closed with the Bailey Amendment in 1936, which imposed an excise tax of three cents per pound on tallow and inedible fats and greases in addition to the old duty of one-half cent per pound. It is since the passage of the Bailey Amendment that the most spectacular rise in oil and fat prices has come. With a sharply advancing market, there has been a scramble for soap oils by buyers who failed to lay in a good back log of supplies when they were obtainable at much more attractive levels.

Scramble is the right word to describe the present situation in the oil and fat market. One soap maker scrambled early in the proceedings and managed to tie up for his own use a good portion of the available stocks of babassu oil. Others are now buying Brazilian oiticica oil, which although a drying oil and normally out of reach for the soap kettle, is now priced favorably for soap use. There are fairly substantial stocks of it too, which is an important consideration in the present market.

There have been any number of small lots of various little-heard-of and unusual oils and fatty acids which were offered for soap use. Many of them are good, as far as they go, but in most cases they are not available in sufficient tonnage to be of consequence. An importer will obtain a small shipment, with a promise of availability of larger supplies, but when any interest in the oil develops, it invariably turns out that either supplies are very limited or the native suppliers get delusions of grandeur on the price question as soon as they find there is an active demand. Such is the usual course with most of the novel oils currently being offered in the New York market such as illipe oil, ouri curi oil, rice oil, ucuhuba butter, dende oil, etc. Most soapers never even head of these oils until a month or so ago.



Price fluctuations in coconut oil over the past five years. Coconut recently made an all-time "high" in the London market.

THE effect of the Bailey Amendment seems to have been underestimated in advance by oil buyers, and only after the measure went into effect, levying taxes on supplies previously tax-free, did the soap trade become really excited. The rank and file of buyers missed the market badly and have now only very moderate stocks of soap fats which only a few short months ago could have been accumulated at very attractive levels.

Tallow, for instance, now hovering around the nine cent level, was priced just above four cents six months ago. At the beginning of 1936 prices on city extra tallow were around 6¾ to 6⅞c per pound. From January on, prices went slowly downward in the face of narrow buying interest, small foreign offerings, and a substantial price differential between foreign and domestic material. The drops in prices continued until June, when bottom was struck for the year slightly above 4 cents. Thus the trend characteristic for 1935 prices, which, on the whole, maintained a firm position, was reversed. The lowest level in 1935 was 5⅜ cents at the beginning of the year. A two-year interval had elapsed since the last 4 cent quotations.

Right on the heels of this development, however, came the passage of the Bailey Amendment, which included the additional 3 cents per pound excise tax on imported tallow.

This brought the total duty on imported tallow to 3½ cents per pound, making imports practically prohibitive. Considerable stimulation was given to tallow trading, in a desperate effort on the part of users to build up their stocks while the building at attractive prices was still good. The market developed, in consequence, a distinctly firmer tone.

As the import of the Bailey Amendment graudally came to be realized, imports increased sharply for the two months of July and August, 1936. The real opportunity to build up stocks of tallow by drawing on the European supply had been lost, however, by this time. As soon as the three cent excise tax went into effect, imports stopped. American soapers had missed their opportunity early in 1936 to draw on European tallow stocks, and once these were cut off by the passage of the Bailey Amendment, the subsequent rise to a nine cent level was practically automatic.

A somewhat similar situation has prevailed as far as coconut oil supplies are concerned. Throughout the first nine months of 1936, the price of coast tanks ranged around the four to five cent level. Instead of building up substantial stocks at these prices, many soapers, the smaller ones, particularly, allowed the opportunity to slip by. Only when the market started to advance did they begin to get excited about the situation. By this time, Europe, which ordinarily gets her supplies elsewhere, had taken up about half the offerings of Philippine copra. Once more European buyers had beaten American buyers to market, and with an acute shortage of copra in the Philippines now quite evident, it is the American buyers who are in the unpleasant position of having to look for stocks. Prices now range around nine cents, which with the three cent tax added brings the total coast of this soap oil up to twelve cents per pound.

An additional complication in coconut oil is that even at these prices the market is on a nominal basis. Spot and nearby oil is very scarce, and shippers are inclined to be very wary in offering futures. The shipping strike on the Pacific Coast has tied up many vessels, and it is reported that shippers in the Philippines have difficulty in obtaining cargo space in which to forward the very limited stocks of copra and coconut oil which are available.

IT is interesting to analyze the changes in fat consumption in recent years which have followed price movements and legislative measures such as the 1934 and 1936 excise taxes. The principal effect of the 1934 law was to cut down the quantity of coconut oil used in the manufacture of soap and increase tallow consumption. In former years, about sixty per cent of the coconut oil used in United States was consumed by the soap trade. Following the imposition of the three-cent excise tax on coconut oil, in 1935 only thirty-nine per cent of the coconut oil consumed in the United States went to the soap kettle.

Since the import duty on tallow was relatively low, one-half cent per pound, and no excise tax had been imposed on it in 1935, large quantities of tallow were imported to substitute for the products on which an excise tax had been imposed. Imports of tallow, which in 1933 were practically negligible, jumped to a total of 246,000,000 pounds in 1935. Tallow consumption in the American soap kettle increased from its normal figure of 40 per cent of all the fats that go into soap making to 45 per cent in 1934 and 50 per cent in 1935, representing an increase in consumption of over 150,000,000 pounds a year.

What interfered with the progress of developments to the complete satisfaction of American tallow producers, however, was that a large part of the increased usage was made up of imported tallow. Of a total of 663,000,000 pounds of tallow used in soap in 1935, 190,122,569 pounds were imported.

This led to a demand by American packers and renderers for further tallow protection, and the Bailey Amendment was the answer. Foreign supplies of tallow are now shut out of the American market in spite of the fact that domestic producers cannot supply sufficient stocks to meet the demand from the American soap industry. And due to the world-wide fat shortage, there seems to be nowhere else to turn.

ABOUT the only loophole left after the passage of the Bailey Amendment is the fact that babassu nuts and oil are bound on the free list and exempt from Internal Revenue taxes during the life of the trade agreement with Brazil, which does not expire until January 1, 1939. Babassu is a very satisfactory soap oil, and if sufficient supplies could be obtained these would go far to make the American soap maker breathe a little easier about the oil and fat situation.

As stocks are strictly limited however, and there does not seem to be any possibility of any speedy expansion in the Brazilian industry, it looks as if no real way out will be found in this direction. The only other course will be to import larger quantities of coconut and palm oils, if and when they are available, to make up for the deficiencies in the tallow supply, but to do this American buyers must bid against Europe in a stringent world market, and pay the price.

Most followers of the market look for higher rather than lower fat prices in the immediate future. While many of today's quotations look unusually high as compared with the prices of a few years ago, it is worth remembering that today's levels are really the normal ones. Prices of two and a half cents on coconut oil and tallow were simply a phenomenon of the depression and cannot be expected to appear again except under similar conditions.

Eventually, of course, the present disarrangement of supply and demand in the fat market can be expected o adjust itself. There is always a lag in adjustment in this market, however, and it may be a period of several years before

world production is increased to equal the demands which full economic recovery can be expected to bring. Between the present day and that eventual readjustment of supply and demand, most market watchers feel firmly convinced that the American soap maker will pay prices above present levels for his fats and oils.

On the other hand, one soaper has offered to wager that coconut oil will be two to three cents per pound cheaper by April first. He claims that the usual "miracle" of a very fancy price extracting stocks from the blue when such stocks are not supposed to exist will, in his opinion, be performed again in the near future. He does not, however, disagree that the average soaper is

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Polished Soap Flakes

(*From Page* 28)

not been lacking efforts to stamp a special brand mark upon each flake. German Patent No. 601,514, for example, describes how a stamping roller is incorporated in a flake mill, in order to imprint on each flake a trade mark, letter, date or other device.

IT will frequently be found that soap flakes produced in the latter part of the day (i.e. when the machinery is warmer) are of better quality, as regards flexibility and transparency, than those produced in the forenoon. Careful study should be made of the conditions obtaining at what may be called the optimum period, and an effort subsequently be made to keep these conditions as far as possible constant throughout the entire working day.

As stated at the beginning of these notes, there is a considerable demand in the United Kingdom for perfumed and tinted flakes (rose petals and so forth), in addition to the ordinary household and textile flake demand. Soap perfume compounds of a simple floral character are employed. The dyes are water-soluble, thoroughly dissolved in hot water and distributed evenly throughout the batch. All such added ingredients should be selected with care, and must each in turn be considered should any trouble arise.

If desired a typical lavender compound may be built up from oils of spike, thyme, sage, geranium, cananga and patchouli.—with modifying traces of oakmoss resin, diphenyl oxide, benzyl acetate, geranyl acetate, benzylidene acetone, heliotropin, geraniol, terpineol and linalyl acetate.

A rose compound would consist largely of geranium oil and terpenes, geraniol, citronella oil and phenyl ethyl alcohol; with traces of diphenyl oxide, benzyl acetate and suitable resinous fixatives. As Sedgwick has pointed out, very small traces of aldehydes C_8 and C_9 impart a true and lasting top note.

We have already observed most of the factors that affect the quality of a flake, but complaints are sometimes heard that such-and-such a base is not sufficiently white. The best method for ensuring this is obviously to employ only the best and whitest of materials in the kettle charge and then to wash the soap thoroughly by prolonged boiling on the brine wash or even to give the boil two brine changes.

Bleaching, where necessary, is far better carried out on the fats and oils, prior to saponification. Failing this (and sometimes it is not convenient), there is nothing else to be done but bleach the soap. Here the most satisfactory bleach, in my experience, is zinc dust, and it is used at the rate of one pound to every ton of soap. The bleaching operation is carried out during the strength boil, about 24 hours before the "fit", the requisite amount of zinc dust being mixed with water and distributed evenly over the surface of the kettle, the contents of which are gently boiled, so that it is gradually mixed into the mass. Swelling of the boil will take place and great care must be taken that it does not overflow the kettle. If things appear threatening, steam should be turned off and "flogging" or hand-paddling resorted to. In extreme cases, a few buckets of cold water thrown over the surface of the soap will check the action. The kettle must be carefully watched until all danger of swelling is passed, when the soap may be allowed to settle and then be finished off in the ordinary way.

Finally, it may be noted that the quarter-inch flake appears to be the most convenient size for both maker and user. Very thin flakes, being fragile, are best packaged while still slightly warm, but with automatic packing plant this is sometimes difficult. The most popular flakes in the United Kingdom are either square or diamond-shaped.

EDITOR'S NOTE—That there be no misunderstanding in the meaning of the terms, "chip" and "flake", the difference is pointed out here. Even in the industry, soapers who well know the difference sometimes use the terms interchangeably and incorrectly. Soap chips were first manufactured by slicing off small chips from a bar or slab of solid soap. Later the use of chilling roll and continuous drying equipment gave a better and more uniform product at greater economy in production costs. This still gives what is termed a chip, forming the base for later milling into toilet soap, or perhaps by the use of steel mills and cutting rolls into "soap flakes." Flakes, therefore, have come to mean the thin translucent, uniform wafers of soap cut to a definite design and polished by passage through a steel flaking mill. Chips, on the other hand, are the unmilled wafers, thicker, opaque, and of irregular shape and size due to the breaking up the soap ribbons, after they come from the dryer, in the storage bins and packaging equipment. Both find their chief sale as laundry products. The flake is a higher priced, nicer looking specialty. Often, therefore, when a flake is referred to in the soap industry, the term "polished flake" is used to leave no doubt as to the exact type of soap referred to. —*The Editor.*

New Products

In a highly competitive market, Zanolene emulsion polish for furniture and automobiles depends on smart packaging. A new giant size package which retails for $1.29. Product by American Products Company of Cincinnati. Container and closure by Owens-Illinois.

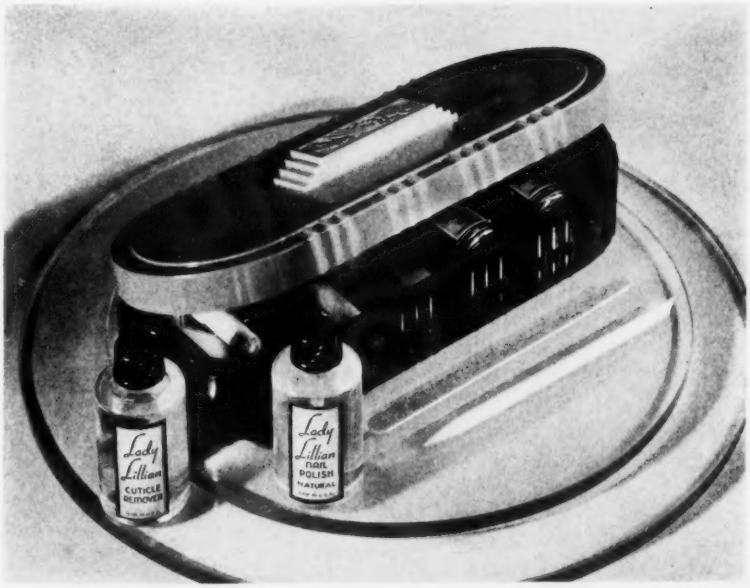
Another kind of shaving accessory, a razor-blade conditioner for storage of razor between shaves, eliminating the necessity of cleaning the razor. Solution cleans, sterilizes, and prevents rust. Made by Razorbrite Company of Houston, Texas.

Jabon John Lahoud, the largest selling toilet soap in Venezuela, is now accompanied on the market by cosmetic and bath companion products, including liquid shampoo termed "scented lather." Made by John Lahoud of Caracas, San Juan, Puerto Rico, and New York. Bottles by Owens-Illinois.

and

Packages

Jabon Brisas de Oriente, a new luxury toilet soap manufactured by Hewitt of Dayton, Ohio, primarily for the high class export trade and department stores. Beautifully packaged in gold, red, and black. Priced to retail at three bars for a dollar or equivalent.



The attractive feature of this combination manicure materials set is the Bakelite box designed for re-use as a cigarette container. Lady Lillian cuticle remover, nail polish, etc.

Improvement in package design in Jan-O scouring powder and roach powder and other items made by Janitors' Supply House of Baltimore, use of bright colored uniform style labels and standard size containers.

WE'VE MOVED

SO MAKE A NOTE OF THIS THE NEXT TIME YOU NEED CHEMICALS

We have moved our New York Sales Office to the new International Building at 630 Fifth Avenue. Here, in Radio City, we are in the center of the chemical district and thus more conveniently located to serve you.

We have also moved our Distribution Center to Ridgefield, New Jersey —3½ miles from the Hudson River in the heart of the industrial East. In a new building especially designed and built for our needs, we have every modern facility to maintain the high standard of Turner chemicals and give you still better service on your next order.

DROP IN AND SEE US

JOSEPH TURNER & COMPANY

83 EXCHANGE PL.
PROVIDENCE

RIDGEFIELD, N. J.
630 FIFTH AVE., NEW YORK

40TH ST. & CALUMET
CHICAGO

NEWS . . . . . .

Newark Plant for Swift

Swift & Co. will shortly start construction of a new edible oil and refining plant on an eighteen acre tract at Port Newark, N. J. Fully equipped the plant will cost in the neighborhood of three-quarters of a million dollars, and will give Swift & Co. improved facilities in the eastern market.

Wrisley Jr. Football Star

George Wrisley, Jr., son of George Wrisley of Allen B. Wrisley Co., Chicago, was selected by the Chicago *Daily News* following the recent football season as one of the outstanding backfield stars of the schoolboy season. He was named as half-back on the All-Chicago suburban team.

To Handle Kirkman Advertising

Kirkman & Son, Inc., have appointed N. W. Ayer & Son, Inc., as advertising counsel for the complete line of Kirkman soap products.

Miracle Products Move

Miracle Products Co. of Newark, N. J., manufacturers of "Miracle Cleans Everything," and various other chemicals have moved into larger quarters, and now occupy 10,000 sq. ft. at their new plant which is located at 287 Sherman Ave., Newark, N. J.

Janton Co. 80 Years Old

Janton Co., Columbus, Ohio, distributors of laundry and dry cleaning supplies, celebrated the eightieth anniversary of its founding on December 19. From the late eighties until 1916 the Janton Co. manufactured soap. In 1916 the company sold its patent rights to Procter & Gamble Co. and ceased to be a manufacturer of soap. The company now represents Procter & Gamble Co. in its district as well as other firms, including J. B. Ford Sales Co., Wyandotte, Mich., Keever Starch Co. and others.

Robert French Dies

Robert B. French, in charge of eastern glycerine sales for Harshaw Chemical Co., Cleveland, and an important authority on the glycerine market, died December 10 at his home in Brooklyn. Mr. French was sixty-six years of age. Prior to 1923 he was with Marx & Rawolle, before joining Harshaw, Fuller & Goodwin.

New Sapolio Campaign

Enoch Morgan's Sons Co., New York, has recently started an intensive campaign for advertising "Sapolio," under the direction of Maxon, Inc., New York. Newspapers and radio are to be used. The Morgan Co. is now also distributing "Midget Maid Steel Wool and Soap Cleanser."

C. Z. Collier Dead

Clinton Z. Collier, former advertising manager of the James S. Kirk Soap Co., Chicago, died recently in Chicago, after being struck by an automobile. Mr. Collier was 85 years old and had lived in Chicago for 60 years.

Morse Heads Fats Assn.

At the recent convention of the Association of American Producers of Domestic Inedible Fats, held in Chicago, R. E. Morse, James F. Morse & Co., Philadelphia, was elected president, succeeding A. L. Buxton. H. C. Burrichter, Baugh & Son, Philadelphia, was elected vice-president; F. B. Wise, Washington, secretary-treasurer, and A. M. Loomis, Washington representative. In a resolution the Association voiced approval of the continuance of present taxes on imported oils and fats.

New Metal Surface Cleaner

Neilson Chemical Co., Detroit, has recently placed on the market a phosphoric acid base metal cleaner, called "Metalprep." This product is said to remove oil, waxes, and other foreign matter from metal surfaces and to inhibit the formation of rust.

New Gillette Shave Cream

Gillette Safety Razor Co., Boston, is carrying on a test advertising campaign on a new brushless shaving cream in Springfield, Mass., newspapers. This is thought to be a forerunner of a national campaign.

Ky. Exempts Shaving Cream

The Kentucky State Tax Commission has recently ruled that shaving cream is exempt from the state's 20 per cent tax on cosmetics. Shaving tablets selling at 5c are also exempt as they are classed as "soaps selling for less than 30c per pound," but tablets selling at 10c are taxable.

Chicago Perfumers Party

The Crystal Room of the Knickerbocker Hotel, Chicago, was the scene of the annual Christmas dinner dance of the Chicago Perfumery, Soap and Extract Association on December 10th. A large crowd of members and guests were on hand to enjoy dinner, dancing and an exceptionally fine floor show. Ray Morris and W. H. Schutte were co-chairmen of the entertainment committee which handled all arrangements for the party including the distribution of the souvenir bags for the ladies

Bon Ami Bonus

Bon Ami Co., New York, presented a Christmas bonus of from 7½ to 15 per cent of annual wages to all its employees and employees of its subsidiaries.

Foragers Elect Neilson

W. W. Neilson of Harold F. Ritchie Co., New York, was elected president of the Foragers of America at the annual meeting of the organization held December 30 at the Herald Square Hotel, New York. Other officers are Bert Georgi of Houbigant, vice-president, and A. J. Connolly, Harold F. Ritchie Co., secretary-treasurer. The annual banquet of the Foragers will be held January 9th at the Hotel Astor, New York. Members of the board of governors of the organization for the coming year include R. S. Arcularius, F. L. Graham, H. D. Folsom, Nelson King, W. T. Kilcullen and J. B. Brennan.

P. & G. Issue Brochure

A colorful brochure, issued by Procter & Gamble Co. to mark the celebration of its hundredth holiday season, traces briefly the history of the company. Portraits of William Procter and James Gamble, founders of the company, and their birthplaces, illustrate the booklet. Gamble was born in England and settled in Cincinnati in 1819, engaging in the manufacture of soap with his parents. Procter was born in Ireland and came to Cincinnati in 1832, starting business as a candlemaker. In 1833, the two men married sisters. The partnership of Procter & Gamble was organized in 1837 and the firm was incorporated in 1890.

Textile Chemical Co. Expands

Textile Chemical Products Co., Greensboro, N. C., sulfonated oils and textile specialties, occupied an enlarged plant providing a floor space of 30,000 square feet on January 1. Material expansion in the line of products manufactured is planned, which will entail extensive alterations and improvements to the property. A greatly expanded laboratory will be installed under the direction of S. J. Valjavec who has just come with the company.

The company is also materially enlarging its facilities for sulfonation and manufacturing of various specialties, a contract just having been awarded Carolina Steel & Iron Co. of Greensboro for the manufacture and erection of a considerable amount of equipment. This will include new sulfonation and other manufacturing equipment. Special equipment will be installed to take care of the manufacture of a highly specialized line of organic finishing compounds which the company will place on the market early in 1937.

The sales organization has recently been increased by the addition of Hal W. Field of Atlanta, who has taken charge of the southern territory consisting of Georgia, Alabama and Mississippi, and Cato M. Littleton of Charlotte, N. C., who is devoting his attention to work with the hosiery trade in North Carolina. Claude Harris of Washington, N. J., is still representing the company in the Pennsylvania-New Jersey district, and has in addition just taken over the New England territory. W. H. McCormick, Jr., is plant manager.

Colgate Sales Prizes

Manning O'Connor, head of the toilet article department of Colgate-Palmolive-Peet Co., has just announced awards of a week holiday trip for seven salesmen and their wives, winners in a recent sales contest.

Kushner Moves Office

The office of Charles Kushner, president of Lloyd Soap Co., New York, has been moved into new and larger quarters on the same floor at 347 Fifth Avenue.

Cleanser Company Formed

Aronex Laboratory, Highland Park, Mich., has recently been organized by G. B. Hills to manufacture a line of cleansers.

Wrisley Cited on Olive Soap

Charging unfair competition in the sale of soap, the Federal Trade Commission has issued a complaint against Allen B. Wrisley Co. and Allen B. Wrisley Distributing Co., also trading as Regal Soap Co., Chicago, and Karl Mayer, George A. Wrisley, and Wrisley B. Oleson, copartners, trading as Karl Mayer & Co. The respondents are alleged to have advertised certain soaps as olive oil soaps, when in fact the oil or fat ingredient of these products was not entirely olive oil, according to the complaint.

In genuine olive oil soap, the complaint points out, the oil ingredient is olive oil to the exclusion of all other oils and fats. According to the complaint, the respondents' practices tended to deceive buyers and unfairly to divert trade to them from competitors, both those dealing in genuine olive oil soap and those selling other soaps the oil content of which was not entirely olive oil.

Weicker Resigns at D & O

Herman G. Weicker, executive vice-president of Dodge & Olcott Co., New York essential oil house, resigned Jan. 4. He issued the following statement: "Just about ten years ago, I entered the house of Dodge and Olcott, as executive vice-president, because my services were needed at that time; today I am severing my connections with the house in view of the divided opinion which has existed for some time in regard to the management of the business. I have therefore resigned as vice-president and as director and have sold my stockholdings in the company. My friends in the industry will hear from me at a later date in regard to my future business intentions, as I shall not remain inactive."

Yake Joins Royce Chemical

E. E. Yake, for the past two years executive vice-president of the Sulphonated Oil Manufacturers Association, resigned this position on Jan. 1 to become assistant to the president of Royce Chemical Co., Carlton Hill, N. J.

Soap Makers Re-elect Colgate

N. S. DAHL
John T. Stanley Co.
Treasurer

S. BAYARD COLGATE, Colgate-Palmolive-Peet Co., was again named to head the Association of American Soap and Glycerine Producers at the annual meeting held in the Hotel Biltmore, New York, December 3. Some fifty representatives of soap manufacturing concerns were in attendance at the meeting to hear reports of the year, the new cleanliness publicity campaign outlined.

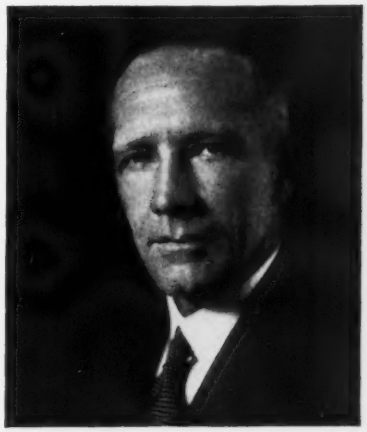
Other officers named to serve over the coming year with Mr. Colgate include: F. A. Countway, Lever Bros. Co., vice-president for eastern states; R. R. Deupree, Procter & Gamble Co., vice-president for central states; F. H. Merrill, Los Angeles Soap Co., vice-president for western states; N. S. Dahl, John T. Stanley Co., treasurer; A. Roy Robson, Fels & Co., assistant treasurer; and Roscoe C. Edlund, secretary.

The board of directors of the association for the coming year will consist of:

H. D. Banta, Iowa Soap Co.; N. R. Clark, Swift & Co.; S. Bayard Colgate, Colgate-Palmolive-Peet Co.; F. A. Countway, Lever Bros. Co.; N. S. Dahl, John T. Stanley Co.; R. R. Deupree, Procter & Gamble Co.; G. A. Eastwood, Armour & Co.; S. S. Fels, Fels & Co.; F. H. Merrill, Los

S. BAYARD COLGATE
Colgate-Palmolive-Peet Co.
President

ROSCOE C. EDLUND
Secretary and Gen'l Mgr.



A. ROY ROBSON
Fels & Company
Asst. Treasurer

F. A. COUNTWAY
Lever Brothers Co.
Eastern Vice-President

F. H. MERRILL
Los Angeles Soap Co.
Western Vice-president

R. R. DEUPREE
Procter & Gamble Co.
Midwest Vice-president

Angeles Soap Co.; W. C. Wollen, Olive Oil Soap Co.; Geo. A. Wrisley, Allen B. Wrisley Co.; and C. F. Young, Davies-Young Soap Co.

Formal authorization was voted at the meeting to make necessary changes in association records to broaden the scope of the association. One of its original purposes was to promote "the best interests of producers of soap and glycerine". To this has now been added the phrase "and kindred products". Authority was also given to change the corporate title, spelling the word "glycerine" with an "e", the spelling used by the association over the past ten years, although in disagreement with the corporate records.

For 1937 the directors announced a soap budget of $80,000, the same sum appropriated in 1936. In addition a soap publicity budget of $50,000 has been authorized. Companies who are already supporting the general soap budget will be welcomed as participants. The glycerine budget remains the same for 1937 at $98,000.

Speakers at the meeting included S. Bayard Colgate, who as president gave an opening review of the year's work, Roscoe Edlund who gave his report as manager of the association and N. N. Dalton who reported on developments in glycerine during the year. A. L. Busick, association counsel, spoke on the Copeland Bill and other legislation, Mason Trowbridge reported on litigation surrounding the processing taxes, and A. Roy Robson discussed the present aspect of taxation on soap raw materials.

Subsequent to the meeting the following list of committee appointments was announced to assist the officers in carrying out the activities of the association over the coming year:

COMMITTEES

Program Committee, to advise with the president:

Messrs. Countway, Chairman, Clark, Deupree, Eastwood, Fels.

Budget Committee, to advise with the treasurer:

Messrs. Colgate, Edlund.

Statistics Committee, to advise with the manager:

G. A. Wrisley, and Messrs. H. F. Elberfeld of Colgate-Palmolive-Peet Co., W. R. Huber of Procter & Gamble Co., A. P. MacIntyre of Lever Bros. Co., and G. M. Pelton of Swift & Co.

Glycerine Research Committee, to advise with the research director:

J. W. Bodman of Lever Bros. Co., H. S. Coith of Procter & Gamble Co., H. S. Mitchell of Swift & Co., W. J. Reese of Colgate-Palmolive-Peet Co., and M. L. Sheely of Armour & Co.

Tax Committee:

A. Roy Robson of Fels & Co., chairman, directors Banta, Merrill, Wrisley, Young, and Messrs. F. C. Adams of Andrew Jergens Co.; F. M. Barnes of Procter & Gamble Co., Daniel McIver of Original Bradford Soap Works, Wm. Newton, Jr. of Haskins Bros. Soap Co., M. J. Pendergast of Lever Bros. Co., W. E. Philbrick of Beach Soap Co., Albert Steiner of Grandpa Soap Co., and Mason Trowbridge of Colgate-Palmolive-Peet Co.

Committee on Publicity and Publications:

C. G. Fox of Fels & Co., R. F. Rogan of Procter & Gamble Co., G. B. Perkins of Lever Bros. Co. and Roy Peet of Colgate-Palmolive-Peet Co.

Urge Higher Canada Oil Duty

Hearings were held last month before the Canadian Tariff Board in Ottawa, December 11 and 12, to consider a proposal of the packing house and dairy industries for higher Canadian duties on imports of vegetable and animal oils, fats and greases. The proposal was vigorously opposed by representatives of the soap industry, bakers, restaurants, laundries and other users of fats who appeared before the Tariff Board to present their views. The new duties proposed by the National Dairy Council of Canada would range from 36.8 per cent to 101.7 per cent.

Manufacturers who opposed the measure emphasized that the main effect of imposition of the higher duties would be to increase production costs on soaps, paints, sulfonated oils, baked goods, etc. John Millar, for Lever Bros., Ltd., emphasized the need of imported tropical oils in the manufacture of soap, and declared Canadian tallow unfit for use in many of the Lever brands. Joseph Harris, Toronto M. P., and himself a soap maker, took issue on this point, deriding the assertion of the inferiority of Canadian tallow. Far from being lower than standard, he said, it is of high quality. He pointed to the depressed state of the Canadian tallow business, with present quotations of 5c per pound making it scarcely worth the while of butchers to save scrap. Imposition of high tariff rates on animal fats and vegetable oils would guide soap makers back to Canadian tallow, he stated, reviving an industry which at one time was of considerable importance.

W. G. Henderson appeared for the Canadian division of Swift & Co. in opposition to the new rates. Swift & Co. exports lard and imports vegetable oils, he stated. These large exports, he contended, had increased the returns of the farmers by millions of dollars, and with favorable preferences these could be still further boosted. On the other hand, a tariff on vegetable oils "might result in lower quotas, reducing export volume, with decreased returns to Canadian producers."

Check "Wonderene" Claims

William E. Huber, Milwaukee, trading as Wonderene Co., and selling a washing fluid designated "Huber's Wonderene Solution," has signed a stipulation with the U. S. Federal Trade Commission, agreeing to discontinue advertising that the product thoroughly disinfects wherever it is used, unless specific directions are set forth in equally conspicuous type, providing that the object to be disinfected must be cleansed thoroughly before application of the solution. The respondent also will stop representing that "Wonderene" is not a poison, will kill all germs, and is a disinfectant for poultry and dogs.

Affirm "Health Soap" Decision

FOLLOWING appeal from the original decision in the important Lever-Eavenson "Health Soap" case, an amended decision has just been rendered by the appellate division of the New York Supreme Court, reaffirming substantially the original decision in Lever's favor, although in slightly modified form. This latest decision, handed down December 23, 1936, again enjoins the defendants, J. Eavenson & Sons, Camden, N. J., and R. C. Williams & Co., New York, from making and selling a soap confusingly similar to "Lifebuoy," and also gives judgment for all damages sustained by Lever as the result of such sale by the two defendant companies.

In the original decision, which came out a little over a year ago, the defendants were restrained from manufacturing and selling a soap, carbolic in odor or octagonal in shape which is of red, reddish, or coral color. It also banned the defendants from using the term "Health Soap" on soap of any character. The revised decision, based on certain changes in findings of fact and conclusions of law as viewed by the appellate court, revises somewhat the conclusions of the original decision.

It seems, for instance, to make more of a point of giving Lever protection against apparent imitations of "Lifebuoy," of whatever type, rather than simply restraining sale of particular types of soap. The likelihood of deception of the public becomes the important consideration in the mind of the appellate court. The new ruling also narrows somewhat the restrictions originally applied to use of the term "Health Soap" by the defendants. They are now restrained from using this designation or any similar one only on soaps which are confusingly similar to "Lifebuoy" and which might be thought by the public to be products of Lever Bros. Co.

The important clauses of the new decision as taken directly from the court's order are reproduced herewith, accompanied by interpretations of certain of the new paragraphs as viewed by the attorneys for the plaintiff. Their interpretations of course carry no official weight, and the eventual decision on any disputed points may again come before the courts.

The previous judgment has been modified by striking out paragraphs "(a)," "(b)," "(2)," "(3)" and the two following paragraphs, and inserting in place thereof the following:

Paragraph (1) (a):

"Any soap not made by or for plaintiff which possesses a carbolic, cresylic or similar odor and which is in appearance and design calculated to deceive the ordinary purchaser into believing that the soap so made or sold by defendants is the manufacture of plaintiff."

Lever's attorneys interpret this to mean that defendants are restrained from manufacturing or selling any carbolic soap which, generally, in size, color, or appearance, is likely to deceive. Specifically, they think that it restrains the manufacture of a red carbolic soap in octagonal, rectangular, oval, fluted, or any other shape which is likely to be mistaken for "Lifebuoy."

(2). Paragraph (1) (b):

"Any soap which is so similar to plaintiff's soap 'Lifebuoy' as to be calculated to deceive the purchasing public into believing that the soap so made or sold by defendants is the manufacture of plaintiff, which is put up in cakes having a shape so similar to plaintiff's soap 'Lifebuoy' as to be likely to cause confusion in the trade or which in appearance and design is calculated to deceive the ordinary purchaser into believing that the soap so made or sold by defendants is the manufacture of plaintiff."

This is interpreted to mean that defendants are restrained from manufacturing any soap regardless of odor, which in shape or appearance is likely to cause confusion. Specifically, the Lever attorneys believe it restrains the manufacture of a noncarbolic, red octagonal, red rectangular, or any other soap which in color or appearance may deceive.

(3). Paragraph (2):

"From using in any way in connection with any soap not made by or for plaintiff which possesses a carbolic, cresylic or similar odor and which is in appearance and design calculated to deceive the ordinary purchaser into believing that the soap is the manufacture of plaintiff, the designation 'Health Soap' or any other words likely to be confused with or mistaken for 'Health Soap'."

The court has thus somewhat limited the order of the lower court, as the original decision restrained the use of "Health Soap" on soap of any character.

The court has ordered Eavenson to account for profits and damages. This accounting is being taken. After its completion, either side may appeal to the New York Court of Appeals to clarify or correct the decree of the lower court.

Bonus for Coast Soap Workers

A Christmas profit-sharing bonus was paid this year to the more than 500 employees of Los Angeles Soap Co. and White King Soap Co., affiliated concerns of Los Angeles, it has been announced by F. H. Merrill, president of both companies. The bonus totals 20 per cent of the concerns' net corporate earnings. A Christmas bonus was omitted last year for the first time in 21 years. Each employee with a service record of a year or more was a participant in the 1936 bonus, and amounts paid were in proportion to length of service and salary.

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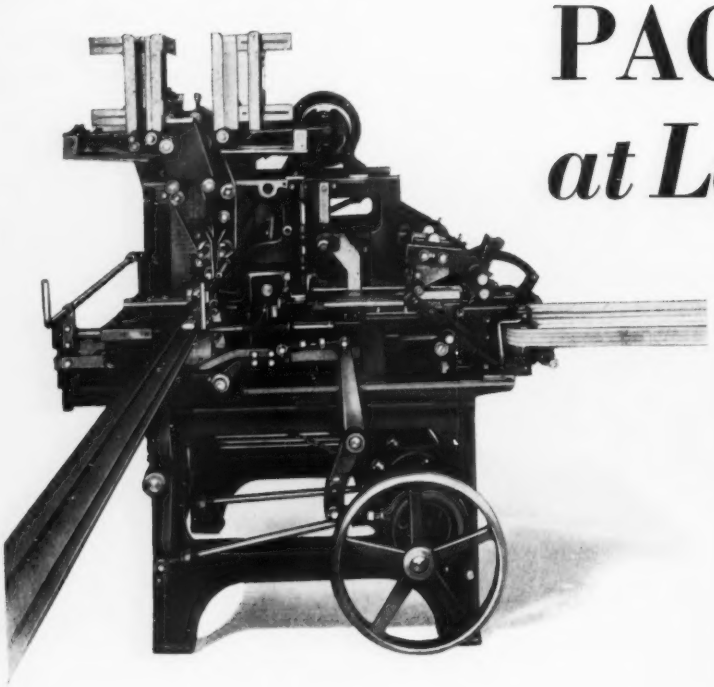

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Debate Soap Specifications

Committee D-12 of A. S. T. M. Meets in New York—Sub-committees Present Progress Reports on Methods of Analysis, Soap Specifications and Nomenclature

SUBSTANTIAL progress toward the development of a complete set of standards for soaps and detergents was reported at a meeting of Committee D-12 of the American Society for Testing Materials held at the Hotel New Yorker, New York, last month. The meeting was attended by over fifty committee members, with Harry P. Trevithick, general chairman of the whole committee, presiding. The only final decision reached at the meeting was on the adoption of the official methods of the American Oil Chemists' Society for soap analysis. These methods, which are official with the American Chemical Society as well, were adopted by the A. S. T. M. group without opposition.

Other decisions reached at the meeting on various definitions and specifications were all in the tentative class. A number of proposals were presented in rough form in the way of progress reports. Comments and suggestions on these tentative proposals are requested, so that the committee will have as many opinions as possible before it in making final decisions as to the exact wording of the various definitions and standards. A new tentative specification for toilet soaps has been proposed as well as one for built soaps. They are included with this article. Tentative definitions have also been proposed for a series of soap terms which are of course subject to change in the light of further suggestions.

J. B. Crowe of Procter & Gamble Co. took charge of the meeting for the reports of the various committees on methods of analysis, and F. W. Smither of the U. S. Bureau of Standards presided during the reading of the reports of the committees on standardization. The committee on built soaps offered the following proposed specification, with

Harry P. Trevithick

the suggestion that modification might be made, with subdivisions on cold and hot-water soaps, low and high titre soaps, moisture content, degree of water hardness, etc.

PROPOSED SPECIFICATIONS FOR A BUILT SOAP, POWDERED, FOR LAUNDRY USE

Grade

I. Built soap, powdered, for laundry use shall be as hereinafter described.

Material and Workmanship

II. Built soap, powdered, shall be made of high-grade materials and shall be satisfactory for the purpose intended.

General Requirements

III. The soap desired under this specification is in the form of a powder, composed of a pure soap made from soda and tallow, with or without the incorporation of suitable saponifiable oils, but without rosin.

With this pure soda soap is to be incorporated as a builder a suitable alkali or alkalies in proper proportion.

Such a powdered built soap is to be of a light uniform color, free from disagreeable odor, and suitable for high-grade laundry work with soft, or reasonably soft, water, where the presence of approved alkaline salts is not objectionable.

The bidder shall state size and weight of package.

Detailed Requirements

Failure to meet any of the following requirements will be cause for rejection.

1. The pure anhydrous soap content shall be not less than 54 per cent.

2. The ratio of pure anhydrous soap to the total alkaline builders calculated as in 3 shall be not less than 2 of soap to 1 of alkaline builders.

3. The per cent of alkaline builders shall be determined from the Insoluble in Alcohol (I. I. A.) as follows:

(a) Phosphate present calculated as trisodium phosphate, anhydrous, Na_3PO_4.

(b) Borax present calculated as borax, anhydrous, $Na_2B_4O_7$.

(c) Silicate present calculated as sodium silicate, $Na_2Si_4O_9$.

(d) Carbonate present calculated as sodium carbonate, Na_2CO_3, and $NaHCO_3$ if any HCO_3 present.

4. The sum of the per cents of pure anhydrous soap, and alkaline builders calculated as above, shall be not less than 75 per cent.

5. Free alkali calculated as sodium hydroxide, NaOH, shall not exceed .5 per cent.

6. The matter insoluble in water shall not exceed 1 per cent.

7. The sodium chloride, NaCl, shall not exceed .75 per cent.

8. The titer of the mixed fatty acids prepared from the soap shall be not less than 30°C.

9. Residue retained on a No. 10 sieve, excluding soft lumps easily broken up, shall not exceed 1 per cent.

10. Color and odor shall be as specified.

It should be understood that the specification is not in final form as yet and comment and criticism will be welcomed by the chairman of this committee, Frederick Krassner, U. S. Naval Clothing Depot, 29th St. & 3rd Ave., Brooklyn.

I. KATZ, J. Eavenson & Sons, Camden, N. J., chairman of the committee on straight soaps, reported that his committee planned

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SILICATES of SODA

to take the existing government specifications as a working basis for the various soaps included in their group. Straight soaps have been defined as soaps in which the sum of free alkali, total matter insoluble in alcohol and sodium chloride is not in excess of 3 per cent, basis 10 per cent moisture, 3.3 per cent basis anhydrous soap. This will include such soaps as—chip soap, powdered soap, milled toilet soap, white floating soap, liquid soap base, liquid soap, etc.

The committee first took up the specifications for milled toilet soap. The government specifications PS-621, issued October 14, 1930, were taken as a basis. Toilet soaps containing cold cream, lanolin and medications of various kinds, are excepted from these specifications. The present government specifications were accepted as they are, with the exception of paragraph E-1-B, which was changed to read as follows:

> The sum of free alkali, total matter insoluble in alcohol, and sodium chloride, shall not exceed 1.7 per cent (present government specifications read 1.5 per cent).
>
> E-1-D, matter insoluble in water, shall not exceed .4 per cent (present government specifications read .3 per cent).
>
> An addition which we may call E-1-H, that anhydrous soap shall be not less than 83 per cent, (present government specifications do not contain such a paragraph).

The Committee did not discuss the question of coconut oil content, or the question of saponification number, in the soap to provide for the coconut oil, or palm kernel oil, content. This is provided for in the government specifications on floating soap, but not on toilet soap. All they state is that the soap should lather freely when used with cold, soft water. This is not entirely satisfactory because soap will lather differently in different waters, and it becomes a matter of personal opinion, and is not as definite as the saponification number would be. This will be discussed further by correspondence and at future meetings.

Any comments on the above, or suggestions for further revision.

(*Turn to Page* 73)

Cite Charles of Ritz

Charles of the Ritz, Inc., and Charles of the Ritz Distributors Corp., both of New York, were cited in a complaint released December 24 by the U. S. Federal Trade Commission as violators of the Robinson-Patman Act. These two cosmetic houses are charged with discriminating in price between different purchasers of their products of like grade and quality, by allowing certain purchasers preferential prices. The complaint also charges other violations of the R-P act, including payment of advertising allowances to certain distributors without making them available to all on proportionately equal terms, and furnishing demonstrators to certain purchasers without similarly treating other purchasers on proportionately equal terms.

The payment of "push money" to clerks is attacked under the provisions of section 5 of the U. S. Federal Trade Commission Act. This practice, according to the complaint, has the capacity to suppress competition in the sale of cosmetics and toilet preparations and to divert trade unfairly to the respondents from competitors, as well as from those retail customers of the respondents or other sellers and distributors who do not receive the benefits of the respondents' alleged practices.

The respondent corporations are allowed 20 days from service of the complaint in which to file answer. It seems likely that these cases will serve as further test examples to ascertain the reaction of the courts to certain features of both the Trade Commission and Robinson-Patman Acts. This is the first reference that has been made to demonstrators, "push money" or advertising allowances in these recent cases.

Industrial Soap Expands

Industrial Soap Co., 1501 S. Eighth St., St. Louis, has just acquired a four-story building at 804 Barry St. to allow for expansion. M. A. Bennett of Industrial advises that business has tripled over the past year. The concern acts as factory distributor for Procter & Gamble and Wm. Waltke and has just recently started the manufacture of a sulfonated oil shampoo. A bonus of two weeks' pay was presented to each employee at Christmas time.

Introducing "Martinol"

Michel Export Co., New York, is introducing a new higher fatty alcohol base for cosmetic use under the name "Martinol." It is particularly recommended for use in the manufacture of hair preparations.

New Wilbert Package

Wilbert Products Co., New York, is selling its "Wilbert's Wonderful Cleaner" in a bottle redesigned to correspond with the packages for the company's other products.

Act on Impure Olive Oil

The Merchants' Association of New York has recently enlisted the aid of Dr. John L. Rice, Commissioner of Health of the City of New York, in an attempt to organize a local campaign against the sale of adulterated olive oil. The recent development of satisfactory tests for the presence of teaseed oil—which sells for less than half the price of pure olive oil—in samples of so-called olive oil, represents a considerable step forward in combatting adulteration. Only a short time ago, there were no reliable tests for teaseed oil. Its properties are so similar to those of olive oil that detection of its presence with olive oil has hitherto been almost impossible.

Viscount Lever Soap Chemist

John Giffard, research chemist on the staff of Lever Brothers at Port Sunlight, has just been revealed as Viscount Tiverton, heir of the Earl of Halsbury. The prospective Earl, who took a B.Sc. degree at London University, has followed chemistry as a hobby for many years. He has been on the technical staff of Lever Bros., Ltd., at Port Sunlight, England, for about a year.

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Another of our well-founded ideas is that the proper selection of a high-type odor can do much to lift the average product out of the strictly ordinary class. Time and again we have seen a shift to an improved odor give some manufacturer's soap, shampoo or spray that added air of distinction that brings increased consumer acceptance and added sales.

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Cite Helena Rubinstein

A cease and desist order has been issued by the U. S. Federal Trade Commission requiring Helena Rubinstein, Inc., New York, to refrain from advertising that its cosmetics and toilet preparations will serve as a food for, or nourish, the skin, muscles, or tissues; will prevent crow's feet and wrinkles, strengthen eye nerves, rebuild worn-out cells and dissolve fatty tissues or act as effective weight reducers. A second order requires B. H. Krueger, Inc., New York, to stop representing that its cosmetics and toilet preparations are of English manufacture, or imported from England. The respondent is also ordered to cease asserting that its articles are made for, or distributed by, an English company when such is not a fact. The Commission's complaint against Lightfoot Schultz Co., New York, which was included with the Krueger company as a respondent was dismissed.

Mrs. Simpson at Bruno Court

The Grasse, France, perfuming material factory of Bruno Court was visited recently by Mrs. Wallis Simpson who was reported to have been keenly interested in the various manufacturing processes. Bruno Court are represented in the United States by the Aromatics Division of Naugatuck Chemical Co. of which Burton T. Bush is manager.

Claims May Affect Soap Duty

Soap manufacturers who are advertising germicidal soaps in the British papers are concerned over an opinion expressed at a recent hearing in the British House of Commons inquiring into the effect of the law affecting stamp medicine duties. From the view taken by the committee it is evident that advertisements which claim that a product can cure or prevent an ailment may make the product liable to duty. Sir Charles Fitzroy, solicitor to the British Customs and Excise Board, expressed the opinion that such advertisements bring the article advertised within the scope of medicines liable to duty, "if on consideration the board considers the article was held out or recommended for the cure or prevention of an ailment." This, he thought, would not apply to a floor polish stated to have disinfectant properties. So far the advertisements of soap manufacturers claiming to be helpful in preventing or curing diseases have not been challenged by the board.

At Cleaners' Convention

Among those who have reserved space for exhibitions at the convention of the National Association of Dyers and Cleaners to be held at the Netherland-Plaza Hotel, Cincinnati, Jan. 25-28, are Huntington Laboratories, Huntington, Ind.; Davies-Young Soap Co., Dayton; Darco Corp., New York; Proctor & Gamble Co., Cincinnati, and Anderson-Prichard Oil Corp., Oklahoma City.

Roane With Huisking

Robert H. Roane, recently connected with A. C. Drury, Chicago, has been made manager of the Chicago office of Charles L. Huisking & Co. and the Conti Products Corp., to succeed the late George P. Huisking.

Norda Montreal Office

Norda Limited, Toronto, has just opened a Montreal office at 295 Youville Square, Montreal. A full line of perfuming materials for soaps, sanitary products, perfumes and toilet preparations will be carried.

Chicago Drug—Chemical Party

The annual Christmas banquet of the Chicago Drug and Chemical Association was held at the Stevens Hotel, Chicago, on December 22nd. Nearly every one of the 300 members of the association was on hand to enjoy the festivities and to receive one of the finest souvenir bags ever distributed by the association. Arrangements for the affair were handled by the entertainment committee headed by A. G. Schneider.

Plan Soap Factory in Prison

Plans have been announced by the state auditor of Wyoming for a soap factory at the Wyoming state penitentiary, which would employ about 65 prisoners who are not occupied at present.

Hold Cholesterol Patent

Commenting on a note in the December issue of SOAP (p. 66), referring to a French Patent on cholesterol detergents, Michel Export Co., New York, advises that the corresponding American Patent is No. 2,041,560. Michel Export Co. sells this material in the American market.

Armour Net Up

Armour & Co., completing their 69th year on Oct. 31, 1936, have announced a net income of $10,184,492, equal after allowances for preferred dividend requirements, to 67c a share on 4,065,940 shares of five dollar par common stock. This compares with consolidated net income of $9,348,678, equal to 56c a share, for the fiscal year ended Nov. 2, 1935. Earnings for 1936, however, are slightly under those for the period ended Oct. 27, 1934, which totaled $10,560,619.

Soap Employment Off

The index of employment in the soap industry registered 102.3 for November, 1936, as compared with 107.1 in October and 101.9 in November, 1935. The November, 1936 pay roll index stood at 101.6, as compared with 105.3 for October, 1936, and 96.4 for November, 1935.

Deecy Products Moves

Deecy Products Co., manufacturer of leather and textile specialties, has moved into new quarters at 120 Potter St., Cambridge, Mass.

New Scouring Pad

The "Kitchen Devil Pot Cleaner," a new metal scouring pad, is being offered by Landon P. Smith, Inc., Irvington, N. J.

Los Angeles Soap Co., Los Angeles, has recently placed on the market its "A Plus" health soap.

iEi

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Lanolin — Waxes — Zinc Oxide
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FACTORIES: Jersey City, N. J., Niagara Falls, N. Y.

Contracts Awarded

Philadelphia Soap Awards

Procter & Gamble Distributing Co., Philadelphia, has just been awarded a contract covering 10,000 lbs. laundry soap at $4.17 by the Philadelphia Engineer. Other awards made by the Philadelphia Engineer at the same time were to Swift & Co., Philadelphia, for 10,000 cakes toilet soap at $5.17 cwt. and to Conray Products Co., New York, for 1,200 cakes grit soap at $3.64.

Brooklyn Polish Award

R. M. Hollingshead Corp., Camden, has just been awarded a contract by the Brooklyn Quartermaster covering 7,500 pints metal polish at 6.9c.

Chicago Mop Award

Semple Mfg. Co., Louisville, was recently awarded a contract for 25,008 cotton mops at 22.98c by the Chicago Quartermaster.

Scouring Powder Awards

Hecker Products Corp., New York, has just been awarded two contracts by the Chicago Quartermaster, one covering 264 cans scouring powder at 3.6375c and the other covering 360 cans scouring powder at the same price.

Marine Corps Soap Bids

Low bidders on various soap items at a recent bidding opened by the U. S. Marine Corps., Washington, D. C., for Quantico, Va., were as follows: Armour & Co., Chicago, on 16,000 lbs. soap powder, at a price of 2.81c; Iowa Soap Co., Burlington, on 1,250 lbs. toilet soap at 7.6c and on 4,025 lbs. chip soap at 7.5c; and Procter & Gamble Distributing Co., Cincinnati, on 24,000 lbs. laundry soap, at 4.1c.

Rock Island Soap Award

Swift & Co., Rock Island, Ill., were recently awarded a contract covering 100 cases mechanic soap at a price of $297. Colgate-Palmolive-Peet Co., Jersey City, had entered a bid at the same price.

P. & G. Get Soap Award

Procter & Gamble Distributing Co., Omaha, was recently awarded a contract for 9,000 lbs. laundry soap at a price of $344.70 for the Rock Island Engineer.

Soap Powder Award

Swift & Co., Rock Island, has been awarded a contract covering 4,600 lbs. soap powder at a price of $105.84 for the Rock Island Engineer.

Gets Soap Award

Industrial Soap Co., St. Louis, has just been awarded a contract by the procurement division, branch of supply, Washington, D. C., calling for 13,000 lbs. hand soap powder at a price of $.088.

Gets Floor Wax Contract

R. M. Hollingshead Corp., Camden, N. J., has been awarded a contract by the U. S. Marine Corps, Philadelphia, calling for 10,000 lbs. floor wax at a price of 11.19c.

P. & G. Get Soap Award

Procter & Gamble Distributing Co., Chicago, has been awarded a contract for 559,980 lbs. of laundry soap by the Chicago U. S. Army Quartermaster at a price of 3.69c. Day & Frick, Philadelphia, awarded 20,000 cakes grit soap at 1.72c.

The Fat Situation

(*From Page* 37)

going to pay "through the nose" for some time to come as a direct result of the world-wide shortage of fats. He has expressed sympathy for the rank and file of small soap makers, who are generally supposed to be short of oil. Although he sees a lull in the coconut oil price rise, he points to the fact that the American production of soybean oil is tied up by two large consumers through next September, and to similar situations in oils of lesser importance. He states that there are fatty acids in Europe and tallow in South America which could be bought to advantage to alleviate a tight situation in the United States were it not for the excise tax.

Another soaper sees the entire situation playing the small manufacturer right into the hands of the larger soaper, and states that he hates to think at which end of the horn the small soap maker is going to come out. He also points out that the renderers who have played such an important part in the legislation accounting for a good part of the present situation in the United States, are slitting their own throats by encouraging the concentration of soap manufacture in a few hands,—by the elimination of many smaller units. They will be "skinned alive" again by the big buyer in a couple of years, he predicts, just as they were back in 1932 and 1933.

Irrespective of individual opinion, the fact remains that fats are scarce, prices high, and soapers with some exceptions short of stocks. This sort of raw material market can very easily precipitate a competitive battle within the soap industry which might be fatal to some units which are not too firmly entrenched. There is certainly no wonder that some soapers view the entire situation with very considerable alarm.

Oil Dinner Jan. 19

A quarterly meeting and dinner of the Oil Trades Association of New York will be held at the Waldorf-Astoria Hotel, New York, January 19. A floor show will follow the dinner which will be served at 7:00 P. M. There is no charge to members at this gathering, but definite reservations must be made. The annual election of officers is scheduled for March 23.

Colorful, Sturdy NEW STEEL DRUMS AND PAILS are *major factors* in keeping your Products in the SPOTLIGHT OF FAVORABLE CUSTOMER ATTENTION.

They insure *prompt display* of your products and your brand name *at all times*—and your customers recognize and appreciate the *complete protection* they provide.

BENETCO DRUMS AND PAILS combine attractive appearance with sturdy construction. They are available in durable, brilliant plain colors, or attractively lithographed—all sizes and styles.

PUT THESE EXTRA SALESMEN TO WORK FOR YOU NOW—
increase your sales of oils, soaps, shampoo bases and insecticides!

Request catalog and prices—no obligation to you.

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the editor of a prominent London business publication in the drug and chemical field has this to say about the technical information in SOAP:

"I must say that I find your journal the most informative of all the technical journals we receive here from America. So many of the technical journals published in this country and in yours are just so much padding, but with your journal as soon as it comes into my office it is cut into about a dozen different parts and filed under various headings for future reference. With most other journals, one is fortunate if one gets a useful article or piece of information per issue."

●

Other Features

1. **Complete news of the industry interestingly and concisely reported.**
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3. **Complete record of new trade marks and patents in every issue.**
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all in

SOAP, **254 W. 31st STREET N. Y. C.**

Subscription: **Three Dollars Annually in the U. S. A.**

Foreign, $4.00

New Trade Marks

The following trade-marks were published in the December issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Marks Filed

SAN-O-SWAB — This in solid script describing paper cleansing pads for porcelain and the like. Filed by Minna I. Reach, Pasadena, Calif., July 15, 1936. Claims use since June 25, 1936.

FLO—This in heavy solid letters describing liquid dry cleaning soap for use in petroleum systems. Filed by Sterling Products Co., Easton, Pa., Sept. 30, 1936. Claims use since Aug. 24, 1936.

KLEN-OLAX—This in solid letters, with first four letters considerably larger than the rest, describing liquid dry cleaning soap. Filed by Sterling Products Co., Easton, Pa., Sept. 30, 1936. Claims use since May 27, 1936.

POKADOT—This in outline letters with blue circle above "A", describing laundry bleach. Filed by Pokadot Chemical Co., Greenville, Pa., May 8, 1936. Claims use since Mar. 21, 1933.

ALMO—This in fancy letters on reverse plate beneath sketch of clown's head, describing water softener. Filed by Herman Weiss, Yonkers, Sept. 10, 1936. Claims use since Sept., 1932.

POLLY—This in solid letters with sketch of parrot, describing gum-base polish for floors, etc. Filed by Grace Mfg. Co., Cincinnati, Sept. 3, 1936. Claims use since May 1, 1936.

OLD NEW HAMPSHIRE—This in fancy solid letters above sketch of woman and child, describing household cleanser. Filed by Keene Washing Products Co., Keene, N. H., June 26, 1936. Claims use since Dec. 10, 1935.

RINO — This in solid letters describing cleansers. Filed by Hordel Co., New York, Oct. 17, 1936. Claims use since Oct. 1, 1935.

DU-TONE—This in solid letters describing glass cleaner. Filed by H. Kirk White & Co., Oconomowoc, Wis., Oct. 17, 1936. Claims use since Sept. 1, 1933.

FILTOFOAM—This in solid letters describing dry cleaning soap. Filed by Benzofoam Products Co., Chicago, Oct. 19, 1936. Claims use since Jan. 1, 1910.

ANTISEPTIZED—This in solid letters describing insecticides and fungicides. Filed by Rudolph Rebold, New York, Sept. 14, 1936. Claims use since Sept. 9, 1936.

SANAROMA—This in solid letters, describing insecticides. Filed by Mabex Co., Philadelphia, Oct. 2, 1936. Claims use since June 15, 1935.

SKOL—This in solid letters describing antiseptic. Filed by Skol Co., Mt. Kisco, N. Y., Oct. 6, 1936. Claims use since Jan. 30, 1934

EFFLOR—This in solid letters describing disinfectants, etc. Filed by Efflor Co., Boston, Oct. 8, 1936. Claims use since Feb. 6, 1936.

FEMFOAM—This in solid script describing antiseptic. Filed by Lydia Allen De Vilbiss, Miami, Oct. 10, 1936 Claims use since March, 1936.

PURE—This in solid letters inside notched edge disc, describing automobile polish. Filed by Pure Oil Co., Chicago, Dec. 23, 1935. Claims use since Apr. 2, 1935.

DUCO-WAX—This in solid letters, with number seven in outline, describing wax polish for painted surfaces. Filed by E. I. Du Pont De Nemours & Co., Wilmington, Sept. 18, 1936. Claims use since May 26, 1931.

SHINE ON—This on reverse rectangular blue and orange plate above sunburst design, describing furniture polish and floor wax. Filed by Bangs Products, Inc., Linden, N. J., Sept. 24, 1936. Claims use since Aug. 1, 1936.

SAV-O-SILX—This on circular reverse plate describing liquid soap. Filed by Sav-O-Silx Co., Los Angeles, Aug. 18, 1936. Claims use since Aug. 10, 1936.

CREOLOL—This in fancy solid letters, describing disinfectants and insecticides. Filed by American Creolol Co., Latrobe, Pa., Sept. 15, 1936. Claims use since Dec. 30, 1897.

MAZEL—This in outline block letters on circular plate, with sketch of star, describing kosher household cleaner. Filed by Feinberg Kosher Sausage Co., Minneapolis, June 5, 1936. Claims use since September, 1935.

SWEET GEORGIA BROWN—This in solid lower case letters, describing toilet soap. Filed by Valmor Products Co., Chicago, July 8, 1936. Claims use since Feb. 1, 1927.

COSMIC—This on disc-shaped reverse plate with stars and lightning design, describing metal cleaner and polish. Filed by Cosmic Products Co., Oakland, Cal., Sept. 28, 1936. Claims use since Sept. 10, 1936.

LESTOIL—This in solid letters describing liquid cleanser. Filed by Adell Chemical Co., Holyoke, Mass., Oct. 3, 1936. Claims use since Sept. 24, 1936.

FABRICOL—This in fancy solid letters describing stain remover. Filed by R. R. Street & Co., Chicago, Oct. 19, 1936. Claims use since Mar. 30, 1935.

N-O-V-O—This in fancy solid letters describing douche. Filed by Modess Corp., New Brunswick, N. J., Feb. 15, 1936. Claims use since Oct. 15, 1935.

DRAIN-ZIT—This in solid letters describing drain pipe flush. Filed by Enoz Chemical Co., Chicago, Oct. 5, 1936. Claims use since Sept. 16, 1936.

SULTAR—This in solid letters describing shampoo. Filed by George Gallowhur, Mt. Kisco, N. Y., Oct. 14, 1936. Claims use since Feb. 15, 1936.

KRANICH SOAPS

U. S. P.

POWDERED CASTILE SOAP

ALSO a complete line of KRANICH QUALITY

Pine Scrub Soaps
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Coconut Oil Shampoos
Olive Oil Shampoo

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YOU FURNISH THE SOAP ... ... WE FURNISH THE PERFUME

• BLUE LILAC

"Adds Nature's Blossom Fragrance To Soap"

$4.00 per pound
.35 Trial Ounce
Sample on request

- DESERVES YOUR CONSIDERATION
- WELL BALANCED—WELL FIXED
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NUMEROUS OTHER STANDARD ODORS. SPECIAL TYPES CREATED.

CHARLES FISCHBECK CO. INC.

119 WEST 19th STREET
"Backed by a Quarter of a Century of Experience"

NEW YORK

Trade Marks Granted

341,070. Tooth Paste. Bost, Inc., New York. Filed July 15, 1936. Serial No. 381,017. Published September 22, 1936. Class 6.

341,171. Furniture Polishes. Humble Oil & Refining Co., Houston. Filed June 1, 1936. Serial No. 379,096. Published September 22, 1936. Class 16.

341,195. Tooth Paste and Powder. Mayo Bros. Laboratories, Los Angeles. Filed October 28, 1935. Serial No. 370,886. Published January 14, 1936. Class 6.

341,206. Shoe Polishes. Naturel Manufacturing Co., Brooklyn. Filed October 17, 1935. Serial No. 370,536. Published September 22, 1936. Class 4.

341,209. Insecticide. Northfield Specialty Co., Northfield, N. J. Filed June 17, 1936. Serial No. 379,849. Published September 15, 1936. Class 6.

341,271. Furniture Polish. Surprise Polish Co., New York. Filed July 24, 1936. Serial No. 381,432. Published September 22, 1936. Class 16.

341,272. Water Softener. Swift and Co., Chicago. Filed June 1, 1936. Serial No. 379,156. Published September 15, 1936. Class 6.

341,274. Insecticides and Disinfectants. Taylor Chemical Co., Aberdeen, N. C. Filed July 18, 1935. Serial No. 367,451. Published September 22, 1936. Class 6.

341,276. Soaps. Industrial Soap Works, Kearny, N. J. Filed June 23, 1936. Serial No. 380,129. Published September 22, 1936. Class 4.

341,383. Soap. Lucien Lelong, Inc., Chicago. Filed June 3, 1936. Serial No. 379,248. Published September 29, 1936. Class 4.

341,397. Insecticides. S. S. Stafford, Inc., New York. Filed June 22, 1936. Serial No. 380,086. Published September 29, 1936. Class 6.

341,407. Insecticides. General Chemical Co., New York. Filed July 1, 1936. Serial No. 380,476. Published September 29, 1936. Class 6.

341,479. Animal Repellent. Garden Chemical Co., Oakland, Calif. Filed July 27, 1936. Serial No. 381,480. Published September 29, 1936. Class 6.

341,517. Tooth Powder. Rudolph Moosbrugger, Glenside, Pa. Filed August 6, 1936. Serial No. 381,871. Published September 29, 1936. Class 6.

341,576. Metal Polish. Septo Products Co., Detroit. Filed May 23, 1936. Serial No. 378,790. Published October 6, 1936. Class 4.

341,604. Tooth Powder. Polydent Co., Chicago. Filed June 6, 1936. Serial No. 379,399. Published August 4, 1936. Class 6.

341,614. Detergents. Pennsylvania Salt Manufacturing Co., Philadelphia. Filed July 2, 1936. Serial No. 380,526. Published October 6, 1936. Class 4.

341,615. Automobile Cleaner. Balab, Ltd., San Francisco. Filed July 3, 1936. Serial No. 380,542. Published October 6, 1936. Class 4.

341,625. Insecticide. John A. Myers, Philadlphia. Filed July 25, 1936. Serial No. 381,395. Published October 6, 1936. Class 6.

341,642. Soap. Bostonia Products Co., Boston. Filed August 7, 1936. Serial No. 381,902. Published October 6, 1936. Class 4.

341,644. Soap and Soap Chips. Kirkman & Son, Brooklyn. Filed August 8, 1936. Serial No. 381,945. Published October 6, 1936. Class 4.

341,819. Furniture Polish and Floor Wax. Wilbert Products Co., New York. Filed December 16, 1935. Serial No. 372,700. Published October 13, 1936. Class 16.

Chicago Association Elects

The annual business meeting and election of officers of the Chicago Perfumery, Soap and Extract Association was held on December 29th at the Lake Shore Athletic Club. The regular ticket presented by the nominating committee was as follows: president, T. E. Hanshaw; vice-president, W. Kedzie Teller; secretary-treasurer, M. B. Vance. Also scheduled for the meeting was a complete report of the legislative committee.

Status of Tax Cases

Cincinnati Soap Co. has filed with the U. S. District Court for the Southern District of Ohio, Western Division, a brief on the Government's demurrer to the company's petition for refund of taxes paid on the processing of Philippine coconut oil. The only issue before the court for decision in this case is the constitutionality of the Philippine coconut oil provisions of Section 602½ of the Revenue Act of 1934. Other parts of the Revenue Act of 1934 are not involved. The Government's demurrer in the coconut oil tax refund suit brought by Haskins Bros. & Co. against George W. O'Malley, individually and as Collector of Internal Revenue for the District of Nebraska, was sustained by Federal Judge Donohoe on December 17. An order of dismissal has been entered in the case. Haskins' attorneys are proceeding immediately to appeal to the Eighth Circuit Court of Appeals.

Fritzsche Sales Meeting

The annual sales conference of Fritzsche Bros., Inc., New York, held in New York, December 16, 17 and 18, was attended by representatives from all parts of the United States. The program included daily round-table discussions with department heads and a series of motion pictures demonstrating various phases of the firm's work abroad.

Dr. Thomssen Back at Winona

Dr. E. G. Thomssen and Mrs. Thomssen arrived in Winona, Minnesota, recently following an extended eastern trip. The Thomssens stopped in Chicago long enough to attend the Christmas party of the Chicago Perfumery, Soap and Extract Association. Dr. Thomssen is an executive of J. R. Watkins Co.

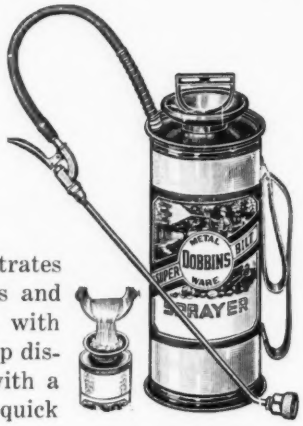
V. C. Products Ad Plans

V. C. Products Co., Philadelphia, cleaning compounds has placed its advertising account with United States Advertising Corp., New York. Plans for 1937 are now being formulated.

No. 170
PORTABLE SOAP
SPRAYER

TAKE THE **RUB** OUT OF
SCRUBBING

Spray Soap or Cleaner
WITH
A Dobbins Superbilt
High Pressure
SOAP SPRAYER



The cleaning solution penetrates into the floor surface, cracks and pits that are not touched with brush or mop. The film of soap dissolves the dirt. Pick it up with a moist mop and you have a quick clean job.

Write NOW for Descriptive Circular

Dobbins Manufacturing Co.
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2 or 3 GAL.
CAPACITY
EASY
TO
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PHENYL ETHYL ALCOHOL

PERFUME
SPECIALTIES
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SOAPS
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Only a product of outstanding purity will give the much sought full rose effect.

Having specialized in the production of phenyl ethyl alcohol for many years, we offer a product unsurpassed in purity and fullness of odor. It is absolutely free from chlorine.

Schimmel & Co., Inc.

601 WEST 26th STREET NEW YORK, N. Y.
822 San Julian Street, Los Angeles, Cal.

Raw Material Markets

(As of January 5, 1937)

NEW YORK—Extraordinary price advances on a wide range of soapmaking raw materials characterized the market this period. Towards closing, business slackened somewhat on account of the holidays and inventory-taking at this time of the year, but all indications pointed to a continuance of upward price trends and good sales volume. All oil and fat prices catapulted skyward, reaching levels in some cases double their low prices of the year. Although there was no immediate change in glycerine prices, the higher prices of soap materials imparted a firm tone to the market.

Sales of essential oils were larger than they have been for the past few years, bringing about a substantial recovery in this field. There are strong prospects for demand to continue to be excellent, and an extension of the rising trend in prices is forecast. With no new developments in the Spanish situation, Spanish oils retained fundamental strength. French flower oils remained steady, although there were no significant price movements in these materials. Sharp advances in citrous oils and citronella oil brought much interest.

Substantial gains were made in the rosin market, but towards the close of this period there were evidences of the development of a reactionary tendency. Offerings were light, and inquiry was somewhat quieter than it had been in recent weeks.

PERFUMING MATERIALS

Anise Oil

With stocks of anise oil at an all-time low, spot prices are wholly nominal. The future of supplies has never been more uncertain than it is at present. At one time during this period, it was predicted that once normal shipments from the primary market are resumed, there will be a sharp drop in prices resulting from the accumulation of large stocks through the curtailment of normal shipments over past months.

Citronella Oil

After holding unchanged for most of this period, while Ceylon prices advanced, Java citronella oil advanced to a range of 39c to 44c late this period. Ceylon oil closed at 29c to 31c. Consumption of citronella oil has been excellent recently and a continuation of this good business in the near future is confidently expected. At present the market is very firm, with the trend still pointing upward. There has been a marked decrease in production of Java citronella oil and exports have been showing a sharp drop for a number of months. In 1933, Java citronella production increased considerably in spite of constantly dropping prices because citronella was the only product which could be produced profitably by the natives. Now that most other native products have become reasonably profitable again, citronella production is falling off.

ROSIN

Closing at prices ranging from $10.95 to $12.05 for grades B to N, WG, and X, and $10.52 to $11.55 for Wood FF, spot, this period, rosin set new high levels in the current upward movement. Both domestic and foreign inquiry was good during the early part of last month, but has now slowed down. The recent development of a reactionary price tendency, together with the normal dropping off of business at this time of year, are held responsible for the change. Nevertheless, the general undertone of the market is considered firm. Offerings in primary markets have been light, for most part, with stocks in primary centers reported to be considerably lighter now than at this time last year.

The United States Department of Agriculture has just announced plans for a conservation program for the naval stores industry for 1937. From a survey conducted by the United States Department of Commerce, it was reported that the Russian naval stores industry, which was organized ten years ago, has expanded rapidly during recent years and ranks next to France and the United States in production. Other developments abroad include the nationalization of the entire Portuguese naval stores industry and the continuation of Germany's attempts to establish a naval stores industry. Rosin production in France was higher this year than last, amounting to 66,200 metric tons as against 65,067 tons in 1935.

COALTAR CHEMICALS

At closing, the naphthalene market was quiet, with reports of substantial volumes of business having been booked for 1937. Creosote oil, with demand fairly good throughout the past month, advanced ½c per gallon. A readjustment of phenol prices came early this period. Drums are now being sold on a basis of 13¼c to 14¼c per pound, in car lots.

Tallow

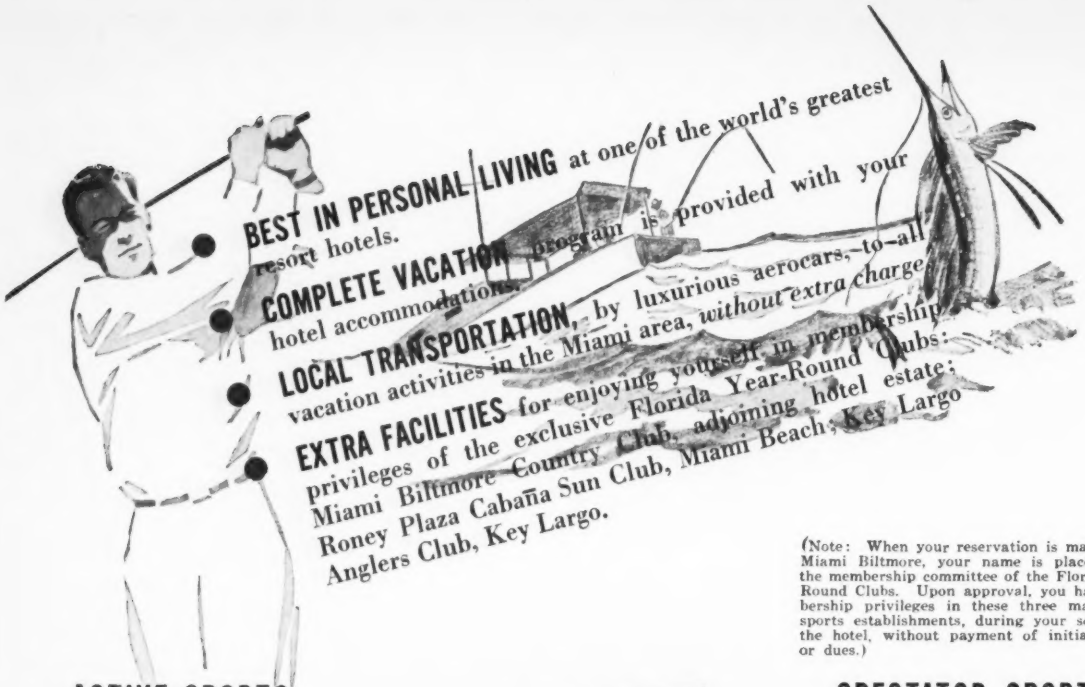
At the close of this period it was reported that no important quantities of tallow were available on spot at less than 9c a lb. Offerings were light and the tone of the market held firm. There was a fair amount of activity in tallow futures.

Coconut Oil

Crude oil was quiet at closing, with spot oil scarce and wholly controlled by resellers, who maintained the high levels recently reached. Copra advanced still further, attaining a new all-time high level in the London market.

Olive Oil

The olive oil market was extremely firm in tone, with both spot and futures offerings of denatured oil light. Inquiry for foots was fair, and the market continued strong.



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COMPLETE VACATION program is provided with your hotel accommodations.

LOCAL TRANSPORTATION, by luxurious aerocars,—to-all vacation activities in the Miami area, *without extra charge*.

EXTRA FACILITIES for enjoying yourself in membership privileges of the exclusive Florida Year-Round Clubs: Miami Biltmore Country Club, adjoining hotel estate; Roney Plaza Cabaña Sun Club, Miami Beach; Key Largo Anglers Club, Key Largo.

(Note: When your reservation is made at the Miami Biltmore, your name is placed before the membership committee of the Florida Year-Round Clubs. Upon approval, you have membership privileges in these three magnificent sports establishments, during your sojourn at the hotel, without payment of initiation fees or dues.)

ACTIVE SPORTS

GOLF — 18-hole championship course, adjoining the hotel. Five celebrated pros, including Tony Manero, National Open Champion. One of the most beautiful clubhouses in the world.

HORSEBACK RIDING — Stables of fine mounts. Thirty miles of bridle trails. Field for jumpers. Courteous expert staff.

SWIMMING — Huge, outdoor pool, with miniature sand beach for sun-bathing, on hotel estate. Surf-bathing on Roney Plaza's private beach, Miami Beach; also, large, salt water pool of Roney Plaza Cabaña Sun Club.

TENNIS — Fast, clay courts on hotel estate. Brilliant professional coach. Also, courts at Miami Beach in the grounds of the Roney Plaza Hotel.

FISHING — World's best sport-fishing is available at Key Largo Anglers Club, one of the units of the Florida Year-Round Clubs, on the Florida keys. Fleet of fishing boats, fully equipped for deep-sea angling. Crews of experienced guides.

SPECTATOR SPORTS

GOLF TOURNAMENTS—A dozen big events this winter on the Biltmore course, including the famous Miami Biltmore $10,000 Open.

HORSE RACING — Aerocars run on regular schedules, conveying Miami Biltmore guests to and from both handsome tracks: Hialeah Park and Tropical Park, without extra charge.

AQUATIC SPORTS — Weekly water carnivals are held at Miami Biltmore pools. One of the resort season's favorite pasttimes. Olympic champions and other stars in competition and exhibition. Comfortable, protected spectator facilities for thousands.

TENNIS TOURNAMENTS — Held regularly on the Miami Biltmore and Roney Plaza courts, with the country's stars frequently in competition.

CHOWDER PARTIES — Frequent social events, such as chowder parties and fish fries, are held at Key Largo Anglers Club. Cottage and clubhouse accommodations. Every comfort for informal living. Daily aerocar transportation to and from the hotel.

● In short, whatever your preference in sport or relaxation, it can be satisfied with a Miami Biltmore vacation. Whatever your inclination in social life, you may indulge it here—whether night-life gayety in the dining room (musical revues and dancing) or a quiet bridge game in the lounge.

Nowhere in the resort world will you find such a complete schedule of things to do and to see .... such smart conveniences for enjoying your favorite hobby .... or such extraordinary privileges as are offered, *without extra charges*, in this "Center of the Wintertime World".

MIAMI BILTMORE

CORAL GABLES, MIAMI, FLORIDA

For reservations and literature (name your hobby) address hotel direct or New York office: 521 Fifth Avenue, Suite 1238-41.

Raw Material Prices

(As of January 5, 1937)

Minimum Prices are for car lots and large quantities. Price range represents variation in quotations from different suppliers and for varying quantities.

Chemicals

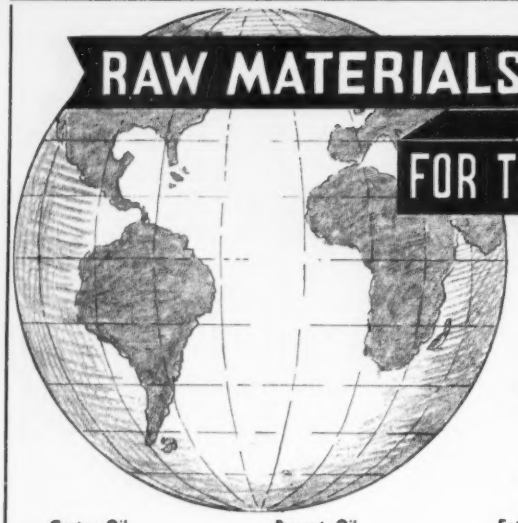
Acetone, C. P., drums	lb.	$ .11	$ .12½
Acid, Boric, bbls., 99½%	ton	95.00	100.00
Cresylic, drums	gal.	.73	.75
Low boiling grade	gal.	.78	.80
Oxalic, bbls.	lb.	.11½	.12¼
Adeps Lanae, hydrous, bbls.	lb.	.16	.18
Anhydrous, bbls.	lb.	.17	.19
Alcohol, Ethyl, U. S. P., bbls.	gal.	4.14	4.19
Complete Denat., SD 1, drums, ex.	gal.	.32	.37
Alum, Potash lump	lb.	.03¼	.03½
Ammonia Water, 26°, drums, wks.	lb.	.02½	.02¾
Ammonium Carbonate, tech., bbls	lb.	.08	.12½
Bentonite 1	ton	—	16.00
Bentonite 2	ton	—	11.00
Bleaching Powder, drums	100 lb.	2.25	2.60
Borax, pd., cryst., bbls., kegs	ton	50.00	55.00
Carbon Tetrachloride, car lots	lb.	—	.05¼
Caustic, see Soda Caustic, Potash Caustic			
L. C. L.	lb.	.07	.08
China Clay, filler	ton	10.00	25.00
Cresol, U. S. P., drums	lb.	.10	.10½
Creosote Oil	gal.	.13	.13½
Feldspar (200 to 325 mesh)	ton	14.00	15.00
Formaldehyde, bbls.	lb.	.05¾	.06¼
Fullers Earth	ton	15.00	24.00
Glycerine, C. P., drums	lb.	.21½	.23
Dynamite, drums	lb.	.21½	.23
Saponification, drums	lb.	.17½	.18½
Soap, lye, drums	lb.	.16	.17
Hexalin, drums	lb.	—	.30
Kieselguhr, bags	ton	—	35.00
Lanolin, see Adeps Lanae.			
Lime, live, bbls.	per bbl.	1.70	2.20
Mercury Bichloride, kegs	lb.	.71	.76
Naphthalene, ref. flakes, bbls.	lb.	.07¼	.07½
Nitrobenzene (Myrbane) drums	lb.	.09	.11
Paradichlorbenzene, bbls., kegs	lb.	.16	.25
Petrolatum, bbls. (as to color)	lb.	.02	.07¼
Phenol, (Carbolic Acid), drums	lb.	.13¼	.14¼
Pine Oil, bbls.	gal.	.59	.64
Potash, Caustic, drums	lb.	.06¼	.06½
Flake	lb.	.07	.07¼
Potassium Carbonate, solid	lb.	.07¼	.09½
Liquid	lb.	.03½	.03¾
Pumice Stone, powder	100 lb.	3.00	4.00
Rosins (600 lb. bbls. gross for net)—			
Grade B to H, basis 280 lbs.	bbl.	10.95	10.95
Grade K to N	bbl.	10.95	11.00
Grade WG and X	bbl.	11.00	12.05
Wood FF Spot	bbl.	10.52	11.55
Rotten Stone, pwd. bbls.	lb.	.02½	.04½
Silica	ton	20.00	27.00
Soap, Mottled	lb.	.04⅛	.04⅜
Olive Castile, bars	lb.	.26	.35
Olive Castile, powder	lb.	.28	.38
Powdered White, Neutral	lb.	.18½	.21½
Olive Oil Foot, bars, 68-70%	lb.	.09	.09½
Green, U. S. P.	lb.	.08	.09½
Tallow Chips, 88%	lb.	.09	.09½
Soda Ash, cont., wks., bags, bbls.	100 lb.	1.23	1.50
Car lots, in bulk	100 lb.	—	1.05
Soda Caustic, cont., wks., solid	100 lb.	—	$2.60
Flake	100 lb.	—	3.00
Liquid, tanks	100 lb.	—	2.25
Soda Sal., bbls.	100 lb.	1.10	1.30
Sodium Chloride (Salt)	ton	11.40	14.00
Sodium Fluoride, bbls.	lb.	.07¼	.08¾
Sodium Hydrosulphite, bbls.	lb.	.19	.20
Sodium Silicate, 40 deg., drum	100 lb.	.80	1.20
Drums, 52 deg. wks.	100 lb.	1.35	1.75
Tar Acid Oils, 15-25%	gal.	.21	.24
Trisodium Phosphate, bags, bbls.	lb.	.03	.03½
Zinc Oxide, lead free	lb.	.06	.06¼
Zinc Stearate, bbls.	lb.	.20	.22

Oils — Fats — Greases

Babassu, tanks	lb.	.10½	.11
Castor, No. 1, bbls.	lb.	.10¾	.11½
No. 3, bbls.	lb.	.10¼	.11
Coconut			
Manila, tanks, N. Y., futures	lb.	.09	Nom.
Tank, Pacific coast	lb.	.08½	Nom.
Cod, Newfoundland, bbls.	gal.	.48½	Nom.
Copra, bulk, coast	lb.	.0535	Nom.
Corn, tanks, mills	lb.	.10½	Nom.
Cottonseed, crude, tanks, mill	lb.	.10⅛	.10¼
PSY, futures	lb.	.11½	.1178
Degras, Amer., bbls.	lb.	.07¾	.08
English, bbls.	lb.	.07¾	.08
Neutral, bbls.	lb.	.11½	.13
Greases, choice white bbls., N. Y.	lb.	.08½	.09½
Yellow	lb.	.08¼	.08⅜
House	lb.	.08⅛	.08¼
Lard, City	lb.	.14¼	.14½
Compound tierces	lb.	.13½	.13¾
Lard Oil,			
Extra, bbls.	lb.	—	.13
Extra, No. 1, bbls.	lb.	—	.12¼
No. 2, bbls.	lb.	—	.11¾
Linseed, raw, bbls.	lb.	.1010	.1070
Tanks, raw	lb.	.0950	.0970
Boiled, 5 bbls. lots	lb.	.1090	.1110
Menhaden, Crude, tanks, Balt.	gal.	.35	Nom.
Oiticica Oil	lb.	.11	.11½
Oleo Oil, No. 1, bbls., N. Y.	lb.	—	.14
No. 2, bbls., N. Y.	lb.	—	.13½
Olive, denatured, bbls., N. Y.	lb.	1.60	Nom.
Foots, bbls., N. Y.	lb.	.10⅜	Nom.
Palm	lb.	.06½	Nom.
Palm Kernel, casks, denatured	lb.	.0830	.08½
Peanut, domestic tanks	lb.	.10⅜	Nom.
Red Oil, distilled bbls.	lb.	.10⅝	.11⅝
Saponified bbls.	lb.	.10⅝	.11⅝
Tanks	lb.	—	.09¾
Soya Bean, domestic tanks, N. Y.	lb.	.1050	Nom.
Stearic Acid,			
Double pressed	lb.	.11¾	.12¾
Triple pressed, bgs.	lb.	.14½	.15½
Stearine, oleo, bbls.	lb.	.12	.12¼
Tallow, special, f.o.b. plant	lb.	.08¼	Nom.
City, ex. loose, f.o.b. plant	lb.	.08⅜	Nom.
Tallow oils, acidless, tanks, N. Y.	lb.	—	.11¾
Bbls., c/l N. Y.	lb.	—	.12¼
Whale, refined	lb.	.0810	.0830

RAW MATERIALS
FOR THE SOAP INDUSTRY
FROM ALL PARTS OF THE WORLD

OLIVE OIL
OLIVE OIL FOOTS



YOU cannot control the weather but you can control the standard of your raw materials by buying from a house which has supplied the best to the trade for nearly a century.

Castor Oil	Peanut Oil	Fatty Acids	Tallow	Modified Soda
Cocoanut Oil	Perilla Oil	Lard Oils	Grease	Silicate Soda
Corn Oil	Rapeseed Oil	Neatsfoot Oil	Lanolin	Metasilicate
Cottonseed Oil	Sesame Oil	Oleo Stearine	Caustic Soda	Tri Sodium Phosphate
Palm Oil	Soya Bean Oil	Stearic Acid	Soda Ash	Di Sodium Phosphate
Palm Kernel Oil	Teaseed Oil	White Olein	Caustic Potash	Chlorphyll
			Carbonate Potash	"CEREPS" Superfatting Agent
			Sal Soda	

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(*As of January 5, 1937*)

Essential Oils

Almond, Bitter, U. S. P.	lb.	$2.75	$3.00
Bitter, F. F. P. A.	lb.	3.00	3.25
Sweet, cans	lb.	.70	.72
Anise, cans, U. S. P.	lb.	.95	Nom.
Bay tins		1.30	1.50
Bergamot, coppers	lb.	2.95	3.05
Artificial	lb.	1.00	1.30
Birch Tar, rect. tins	lb.	.70	.75
Crude, tins	lb.	.14	.17
Bois de Rose, Brazilian	lb.	1.25	1.35
Cayenne	lb.	2.75	3.00
Cade, cans	lb.	.38	.52
Cajeput, native, tins	lb.	.45	.46
Calamus, tins	lb.	3.50	3.75
Camphor, Sassy, drums	lb.	13½	.14
White, drums	lb.	.14½	.15
Cananga, native, tins	lb.	1.75	2.25
Rectified, tins	lb.	3.00	3.35
Caraway Seed	lb.	2.00	2.25
Cassia, Redistilled, U. S. P.	lb.	.90	.95
Cedar Leaf, tins	lb.	.80	.85
Cedar Wood, light, drums	lb.	.21½	.24½
Citronella, Java, drums	lb.	.39	.44
Citronella Ceylon, drums	lb.	.29	.31
Clove, U. S. P., tins	lb.	1.08	1.10
Eucalyptus, Austl., U. S. P., cans	lb.	.41½	43½
Fennel, U. S. P., tins	lb.	1.05	1.10
Geranium, African, cans	lb.	4.85	6.25
Bourbon, tins	lb.	4.75	5.65
Hemlock, tins	lb.	1.05	1.10
Lavender, U. S. P., tins	lb.	2.25	6.75
Spike, Spanish, cans	lb.	1.05	1.10
Lemon, Ital., U. S. P.	lb.	2.85	3.35
Lemongrass, native, cans	lb.	.55	.63
Linaloe, Mex., cases	lb.	1.15	1.20
Nutmeg, U. S. P., tins	lb.	1.10	1.15
Orange, Sweet W. Ind., tins	lb.	1.95	2.05
Italian cop	lb.	2.75	4.50
Distilled	lb.	—	.90
Origanum, cans, tech	lb.	.90	1.25
Patchouli	lb.	5.00	6.00
Pennyroyal, dom.	lb.	1.65	1.75
Imported	lb.	1.60	1.85
Peppermint, nat., cans	lb.	2.25	2.50
Redis., U. S. P., cans	lb.	2.50	2.75
Petitgrain, S. A., tins	lb.	1.05	1.10
Pine Needle, Siberian	lb.	.85	.90
Rose, Natural	oz.	5.25	22.50
Artificial	oz.	2.00	3.00
Rosemary, U. S. P., tins	lb.	.43	.48
Tech., lb. tins	lb.	.37	.42
Sandalwood, E. Ind., U. S. P.	lb.	4.80	5.50
Sassafras, U. S. P.	lb.	.75	1.25
Artificial	lb.	.34½	.35½
Spearmint, U. S. P.	lb.	1.75	2.00
Thyme, red U. S. P.	lb.	.85	1.25
White, U. S. P.	lb.	.80	1.35
Vetivert, Bourbon	lb.	8.00	18.00
Ylang Ylang, Bourbon	lb.	3.50	6.00

Aromatic Chemicals

Acetophenone, C. P.	lb.	$1.25	$2.25
Amyl Cinnamic Aldehyde	lb.	1.55	2.00
Anethol	lb.	1.05	1.10
Benzaldehyde, tech.	lb.	.60	.65
U. S. P.	lb.	1.20	1.30
Benzyl, Acetate	lb.	.56	1.00
Alcohol	lb.	.65	1.15
Citral	lb.	2.00	2.30
Citronellal	lb.	1.25	1.50
Citronellol	lb.	1.90	2.15
Citronellyl Acetate	lb.	4.50	7.00
Coumarin	lb.	3.10	3.30
Cymene, drums	gal.	.90	1.25
Diphenyl oxide		.70	1.00
Eucalyptol, U. S. P.	lb.	.50	.55
Eugenol, U. S. P.	lb.	2.00	2.50
Geraniol, Domestic	lb.	.75	2.00
Imported	lb.	2.00	3.00
Geranyl Acetate	lb.	2.00	2.50
Heliotropin	lb.	2.00	2.10
Hydroxycitronellal	lb.	3.50	9.00
Indol, C. P.	oz.	2.00	2.50
Ionone	lb.	3.25	5.50
Iso-Eugenol	lb.	3.00	4.25
Linalool	lb.	1.65	2.25
Linalyl Acetate	lb.	1.50	3.25
Menthol	lb.	3.50	3.60
Methyl Acetophenone	lb.	2.50	3.00
Anthranilate	lb.	2.10	2.75
Paracresol	lb.	4.50	6.00
Salicylate, U. S. P.	lb.	.40	.45
Musk Ambrette	lb.	4.20	5.00
Ketone	lb.	4.35	5.25
Xylene	lb.	1.25	2.00
Phenylacetaldehyde	lb.	4.80	8.00
Phenylacetic Acid, 1 lb., bot.	lb.	2.50	3.25
Phenylethyl Alcohol, 1 lb. bot.	lb.	4.00	4.50
Rhodinol	lb.	5.75	8.00
Safrol	lb.	.54	.57
Terpineol, C. P., 1,000 lb. drs.	lb.	.23	.25
Cans	lb.	.27	.30
Terpinyl Acetate, 25 lb. cans	lb.	.80	.90
Thymol, U. S. P.	lb.	1.40	1.50
Vanillin, U. S. P.	lb.	3.75	4.00
Yara Yara	lb.	1.30	2.00

Insecticide Materials

Insect power, bbls.	lb.	.16	.18
Concentrated Extract			
5 to 1	gal.	1.25	1.30
20 to 1	gal.	4.10	4.30
30 to 1	gal.	6.15	6.45
Derris, powder—4%	lb.	.33	.38
Derris, powder—5%	lb.	.39	.44
Cube, powder—4%	lb.	.23	.28
Cube, powder—5%	lb.	.28	.33

Gums

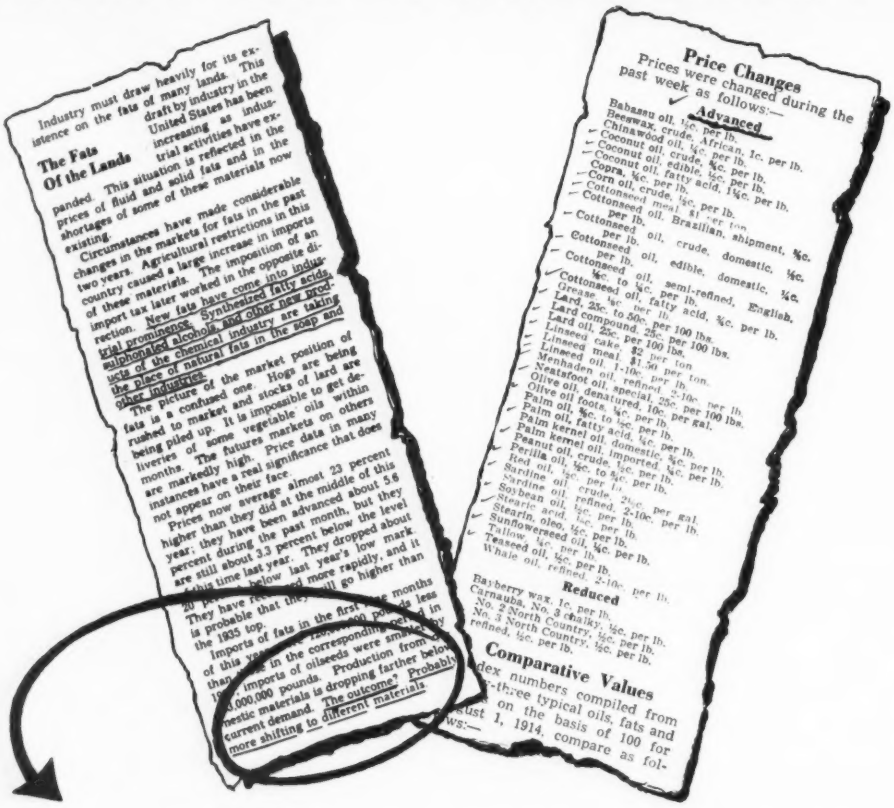
Arabic, Amb. Sts.	lb.	.09¾	.10
White, powdered	lb.	.13	.14
Karaya, powdered No. 1	lb.	.09½	.10
Tragacanth, Aleppo, No. 1	lb.	2.40	2.50
Sorts	lb.	.30	.75

Waxes

Bees, white	lb.	.38	.40
African, bgs.	lb.	.26	.26½
Refined, yel.	lb.	.29½	.32
Candelilla, bgs.	lb.	.15	.15½
Carnauba, No. 1.	lb.	.45	.46½
No. 2, N. C.	lb.	.37½	.38
No. 3, chalky	lb.	.33½	.34½
Ceresin yellow	lb.	.36	.38
Paraffin, ref. 125-130	lb.	.0455	.04¾

Question

WHAT ARE YOU DOING TO OFFSET THE RISING COST OF FATS AND OILS ??



Industry must draw heavily for its existence on the fats of many lands. This draft by industry in the United States has been increasing as industrial activities have expanded. This situation is reflected in the prices of fluid and solid fats and in the shortages of some of these materials now existing.

The Fats Of the Lands

Circumstances have made considerable changes in the markets for fats in the past two years. Agricultural restrictions in this country caused a large increase in imports of these materials. The imposition of an import tax later worked in the opposite direction. New fats have come into industrial prominence. Synthesized fatty acids, sulphonated alcohols, and other new products of the chemical industry are taking the place of natural fats in the soap and other industries.

The picture of the market position of fats is a confused one. Hogs are being rushed to market and stocks of lard are being piled up. It is impossible to get deliveries of some vegetable oils within months. The futures markets on others are markedly high. Price data in many instances have a real significance that does not appear on their face.

Prices now average almost 23 percent higher than they did at the middle of this year; they have been advanced about 5.6 percent during the past month, but they are still about 3.3 percent below the level of this time last year. They dropped about 20 [illegible] below last year's low mark. They have recovered more rapidly, and it is probable that they will go higher than the 1935 top.

Imports of fats in the first [illegible] months of this year [illegible] pounds less than imports of oilseeds were [illegible]. Production from [illegible] domestic materials is dropping farther below current demand. The outcome? Probably more shifting to different materials

Price Changes

Prices were changed during the past week as follows:—

Advanced

Babassu oil, ¼c. per lb.
Beeswax, crude, African, 1c. per lb.
Chinawood oil, ¼c. per lb.
Coconut oil, crude, ¼c. per lb.
Coconut oil, edible, ¼c. per lb.
Coconut oil, fatty acid, ¼c. per lb.
Copra, ¼c. per lb.
Corn oil, crude, 1¼c. per lb.
Cottonseed meal, $1 per ton.
Cottonseed oil, Brazilian, shipment, ¾c. per lb.
Cottonseed oil, crude, domestic, ¼c. per lb.
Cottonseed oil, edible, domestic, ¼c. per lb.
Cottonseed oil, semi-refined, English, ¾c. to ¾c. per lb.
Cottonseed oil, fatty acid, ¾c. per lb.
Grease, ¼c. per lb.
Lard, 25c. to 50c. per 100 lbs.
Lard compound, 25c. per 100 lbs.
Lard oil, 25c. per 100 lbs.
Linseed cake, $2 per ton.
Linseed meal, $2 per ton.
Menhaden oil, 1-10c. per lb.
Neatsfoot oil, refined, 2-10c. per lb.
Olive oil, denatured, 10c. per 100 lbs.
Olive oil, special, 2-10c. per gal.
Palm oil, foots, ¼c. per lb.
Palm oil, fatty acid, ¼c. per lb.
Palm kernel oil, ¼c. per lb.
Peanut oil, domestic, ¾c. per lb.
Peanut oil, crude, imported, ¼c. per lb.
Perilla oil, ¼c. to ¾c. per lb.
Red oil, ¼c. per lb.
Sardine oil, crude, 2½c. per gal.
Sardine oil, refined, 2-10c. per lb.
Soybean oil, refined, ¼c. per lb.
Stearic acid, ¼c. per lb.
Stearin, oleo, ¼c. per lb.
Sunflowerseed oil, ¼c. per lb.
Tallow, ¼c. per lb.
Teaseed oil, ¼c. per lb.
Whale oil, refined, 2-10c. per lb.

Reduced

Bayberry wax, 1c. per lb.
Carnauba, No. 3 chalky, ¼c. per lb.
No. 2 North Country, ¼c. per lb.
No. 3 North Country, ¼c. per lb.
refined, ¼c. per lb.

Comparative Values

dex numbers compiled from -three typical oils, fats and on the basis of 100 for ust 1, 1914, compare as fol- ws:—

TENTATIVE SPECIFICATIONS

Specific Gravity 60°/60° F.	0.96-0.98
Pour Point	47° F.-52° F.
Viscosity (Saybolt)	
@ 100° F.	700-900 Sec.
@ 210° F.	70-80 Sec.
Flash Point	350-380° F.
Fire Point	410-430° F.
Sediment	None
Moisture	Practically None
Ash	Practically None
Completely Soluble in Petroleum Ether	
Acid No.	150-170
Saponification Value	150-170
Color (Rosin Scale)	G-I
Fatty Acid	43-47
Rosin Acids	38-42
Sterols	13%-17

THE ANSWER IS

the application of INDUSOIL (Pine fatty acid) either alone or blended with some of the more expensive oils. This product is available for shipment from our plant at Covington, Virginia, at the following prices: Tank Car - 5c per pound; Carload, in drums - 5½c per pound; L/C/L - 6c per pound.

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PRODUCTION SECTION

A section of SOAP devoted to the technology of oils, fats, and soaps published prior to Jan. 1, 1932, as a separate magazine under the title, *Oil & Fat Industries*.

Soft Soap Specifications

FOLLOWING recent criticism of soft soap as delivered on certain government contracts. and the withdrawal of previous specifications covering this product. a new specification has been issued by the Medical Department of the U. S. Army for its soft soap requirements. This new specification. which calls for the use of caustic soda in addition to caustic potash. has in turn been severely criticized by several soap manufacturers. They maintain that the best type of soft soap for the uses to which it is put by the Army is one made solely with caustic potash. The new specification follows:

A. Applicable Specifications.

A-1. The latest revision of the following specifications shall form a part of this specification insofar as the terms are applicable:

- **a.** United States Army Specification No. 100-2, Standard Specifications for Marking Shipments.
- **b.** Pharmacopeia of the United States, Eleventh Decennial Revision, insofar as grades of materials employed and methods of tests (except as modified below).
- **c.** General Specifications for Drugs, Chemicals and Stains, latest revision (Medical Department, U. S. Army).

B. Types, Grades, Classes, Etc.

B-1. Soft soap in compliance with this specification shall consist of but one grade and one type.

C. Material and Workmanship.

C-1. Material.—All material employed shall be United States Pharmacopoeia quality.

C-2. Workmanship.—Shall be first class in the compounding, filling, labeling, sealing and packing.

D. General Requirements.

D-1. There are no general requirements applicable to this specification.

E. Detail Requirements.

E-1. Soft soap shall be compounded of United States Pharmacopoeia materials and shall contain not less than 1.91 per cent Potassium Hydroxide, which represents 85 per cent of KOH and not less than 4.63 per cent of NaOH, which represents not less than 95 per cent of Sodium Hydroxide. The other components shall be the United States Pharmacopoeia materials and in the same proportion as those described in the Pharmacopoeia of the United States, Eleventh Decennial Revision.

E-2. Soft soap shall be compounded according to art and the best trade practice so as to form a pleasing homogeneous translucent mass.

F. Methods of Sampling, Inspection, Tests.

F-1. Samples shall be selected at random from deliveries.

F-2. Inspection shall include visual inspection of the soft soap, the container and packing.

F-2a. Stringy, non-homogeneous, opaque mass, shall be cause for rejection.

F-2b. Inadequate or poorly capped or second-hand or dirty (inside and outside) containers, shall be cause for rejection.

F-2c. The use of unsightly, badly placed, inadequate, incomplete or misleading labels, failure to indicate a lot number which must truly reflect the findings of the manufacturer's laboratory control; all the above shall be cause for rejection.

F-2d. Packing in such manner or the use of such packing materials as will give cause to doubt safe export shipment, shall be cause for rejection.

F-3. Tests.—The applicable tests are those given in the Pharmacopoeia of the United States, Eleventh Decennial Revision, under the heading of oleum lini, page 258; sapo mollis; page 326; iodine value, page 445; and saponification value, page 445, with the following modifications:

(a) Fatty acids shall be prepared as follows:

Dissolve about 50 grams of the soap in 300 ml of hot water, transfer to a separating funnel, add 150 ml of approximately N/2 sulphuric acid, cool somewhat, add 120 ml of ether, shake, draw off the acid layer and wash the ether layer free from acid with a strong salt (NaCl) solution. Then draw off the aqueous layer as completely as possible, transfer the ether layer to a flask (it is not necessary to transfer quantitatively), add 20 to 30 grams of anhydrous sodium sulphate, stopper the flask, shake, and let stand at a temperature below 25° C. until the ethereal liquid becomes perfectly clear, showing that all water has been taken up by the sodium sulphate. Filter thru a dry paper into another Erlenmeyer flask, and completely evaporate off the ether by passing thru the flask a current of dry air and heating the flask to a temperature not above 50° C.

(b) In the test for alkalinity described under sapo mollis, page 326, U.S.P. XI, the alcoholic filtrate shall be heated to the boiling point just prior to the titration.

(c) The solubility test shall show a residue of not more than 0.05 per cent in a 1:20 water solution using 10 gms. of soap.

F-4. Spectographic analysis.

F-5. Such additional physical and chemical tests as may be required to assure the Government of the purity and quality of soft soap obtained under this specification.

G. Packaging, Packing and Marking.

G-1. Packaging.

G-1a. In screw cap jars containing not less than one pound of soft soap.

G-1b. In steel pails containing not

less than 25 pounds of soft soap. The complete steel pail shall conform to Interstate Commerce Commission specifications, and it shall have its inner surfaces suitably treated to assure indefinite storage of soft soap without chemical interaction, loss thru leakage, or evaporation.

G-2. Packing of one-pound containers shall be in accordance with paragraph A-c, this specification.

G-3. Marking. — Cases shall be marked on at least one end, not sides, top or bottom, and marking shall show item number (number in parenthesis on purchase order or contract), Soft Soap, U.S.P., quantity per case, contractor or manufacturer's name and order number which is that on the order, found in upper right hand corner and preceded by letter "M."

H. Notes.

H-1. This specification covers the following items appearing in the Medical Department Supply Catalog:—

Item 14120—Soap, soft, one pound.

Item 14130—Soap, soft, twenty-five pound.

Notice:—When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished or in any way supplied the said drawings, specifications, or other data, is not to be regarded by implication or otherwise, as in any manner licensing the holder or any other person or corporation or conveying any rights or permission to manufacture, use or sell any patented invention that may be in any way related thereto.

◆

Water Hardness

An improvement is made in the Blacher method for determining the hardness of water by filtering the precipitated oxalate and washing three times with distilled water to which a few drops of sodium oxalate solution have been added. This gives a solution furnishing a definite end point when titrated with the palmitate reagent after the usual neutralization. Only a feeble pink color can be expected but this is permanent for at least 10 minutes. A further improvement is obtained by not adding the methyl orange, and adding an amount of acid determined by a separate titration to bring the solution to the required degree of acidity. E. Gordon Barber. *J. Soc. Chem. Ind.* **55,** 330-1T (1936).

Sulfonated Wetting Agents

Esters of monohydric alcohols with sulfonated higher aliphatic acids are prepared by esterifying the higher fatty acid such as oleic or ricinoleic acid with the alcohol, treating the product with a large excess of sulfonating agent, and terminating the reaction as soon as complete solubility in water has been attained. Such products are useful as wetting agents. Böhme Fettchemie-Ges. m.b.H. German Patent No. 633,082.

◆

Cleansing Agent

Cleansing agents are prepared by introducing 2 or more alkyl groups into mono- or poly-nuclear aromatic compounds containing at least 1 hydrophilic group (OH, COOH, NH_2), joined to any aliphatic substituent. Examples are triisobuylphenylethylamine and diisopropylnaphthylacetic acid. I. G. Farbenind. A.-G. French Patent No. 798,970.

◆

Lathering Agent

Products having good cleaning and lathering properties are prepared by causing ammonia or primary amines, fatty acids, formaldehyde, tertiary amines and sulfur dioxide to react with one another in any order and at a high temperature until the product becomes soluble in water. Thus, lauric amide is dissolved in triethylamine and formaldehyde is added. Sulfur dioxide is introduced and the whole heated to 90° for 3-4 hours. I. G. Farbenind. A.-G. French Patent No. 799,093.

◆

Diene Number of Fats

Conjugated double bonds present in fats or fatty acids can be detected and determined by reaction with an excess of maleic anhydride, separation of the reaction product and titration of the excess maleic anhydride. Since one molecule of maleic anhydride reacts with one double bond, it is possible to express the extent of the reaction in terms of iodine-number equivalents. This value, the diene number, is equal to (1.269 times a) sample weight, where a is the number of cc. of 0.1 N sodium hydroxide solution which would be required to neutralize the amount of maleic anhydride that reacted with the sample. The *B*-eleostearin content of mixtures of varying proportions of tung oil and olive oil was determined readily by the diene number method. H. P. Kaufmann and J. Baltes. *Fette u. Seifen* **43,** 93-7 (1936).

◆

Extraction of Cotton Oil

Benzine and benzene are suitable solvents for the extraction of cottonseed oil. Acetone and carbon tetrachloride are not so good, the former because of its extraction of proteins along with the oil, and the latter on account of its possible decomposition to give hydrochloric acid. Of 5 extraction procedures, treatment of the seed with alcohol, distillation, wetting with water and extraction with benzene, gave oil with the lightest color. Eugene C. Koo et al. *Ind Research* (China) 5, 71-5, 137-41 (1936).

◆

Electrolytic Oil Refining

Oils and fats are deacidified, bleached and freed from unpleasant odor and taste by emulsifying them in skim milk or like dairy product, and subjecting the emulsion to electrolysis. An alkali may be added to the dairy product when oils or fats of high acid content are treated. "Elact" Ges. für elektr. Apparate G.m.b.H. Austrian Patent No. 146,506.

◆

Sulfonated Soybean Lecithin

Washing and emulsifying agents are produced by sulfonating vegetable or animal phosphatides or their condensation products. Fats, oils and their fatty acids may be added prior to the sulfonation. For example, soybean lecithin is sulfonated in perchloroethylene with sulfuric acid monohydrate or in trichloroethylene with sulfuric acid monohydrate and acetone. Chemische Fabrik Stockhausen & Cie. British Patent No. 449,132.

Soapless Shampoos

SEARCH for an alternative to soap for shampoo products has been made for a long time, because of the known disadvantages of soap under certain conditions. Turkey red oil, i.e. sulfonated castor oil, has detergent and wetting out properties and is not precipitated by hard water, but its lathering power is virtually nil, so that it is not a satisfactory solution to the problem.

Fatty Alcohol Sulfates

The properties of the fatty alcohol sulfates depend to some extent on the number of carbon atoms in the molecule. For the production of soapless shampoos, the fatty acids of coconut oil are found to give the best results. They are reasonably soluble in cold water and the solutions are stable to acid and alkali and do not hydrolyze to give an alkaline solution as do ordinary soap solutions. Other advantages are good lathering power and resistance to hard water. If desired, the shampoo can be made slightly acid in accordance with modern ideas. Research has shown that the normal secretions of the skin are on the acid side, and many dermatologists consider alkalinity in cosmetic or detergent products a disadvantage and undesirable.

The solubility of sodium lauryl sulfate in water varies considerably with temperature and there is a marked tendency to form supersaturated solutions which persist for a time and then suddenly precipitate and give a cloudy and unsightly mixture. The potassium salt is no better than the sodium salt in this respect, but it has been found that the triethanolamine salt of lauryl acid sulfate is freely soluble in both hot and cold water and shows no tendency to precipitate from solution on storing. This is available in Great Britain as sulfonated lorol in the form of an amber colored liquid containing about 28 per cent of fatty alcohols. Any proportion up to 50 per cent of this may be used for liquid shampoos, by diluting with water and adding the necessary perfume. Other soapless shampoos can be made of half to one per cent of sulfonated lorol in a 50:50 mixture of alcohol and water. It is unnecessary to use the triethanolamine derivative for such preparations, as the ordinary sodium salt is sufficiently soluble.

In putting up a shampoo powder in individual packets, the problem is to increase the bulk of the sulfonated lorol so that the amount will correspond to that of other shampoo powders. This may be done by diluting with borax, which however furnishes a degree of alkalinity, —with sodium pentaborate which gives a neutral solution,—or with sodium sulfate or even with sugar. The latter may form a somewhat sticky mixture with sulfonated lorol due to the slightly hygroscopic nature of the latter. The proportion of diluent to use is 1½ to 2 times the amount of the sulfonated lorol. Perfume is also added, and if desired, 1 or 2 per cent of tartaric acid.

The main disadvantage of this kind of shampoo material is that it is considered by some too efficient. The strong detergent property of sulfated alcohols is ideal for those people whose hair is inclined to be oily, but it may be too drastic for dry scalps. In such cases, brilliantine should be used after the shampoo. This intensive degreasing is valuable as a preliminary to permanent waving. Many hairdressers prefer to use these products before giving a permanent wave.

Assay of Shampoos

For the benefit of those who wish to make analytical examinations of existing soapless shampoos, a method follows which was suggested by the makers of sulfonated lorol for the determination of the total fatty alcohols in such preparations. Essentially, the method consists of splitting up the compound with concentrated hydrochloric acid and determining the amount of free fatty alcohol liberated.

Weigh in a tared flask 5-7 grams of sample if the fatty alcohol content is believed to be about 30 per cent, or 10-14 grams if it is thought to be considerably lower. Dissolve in 50 cc. of distilled water. Add 50 cc. of pure concentrated hydrochloric acid and boil under a reflux condenser for 1 hour. On cooling it is possible that some fatty alcohol particles may be sticking to the inside of the condenser. Such particles should be dissolved back into the flask by spraying the inside of the condenser with ether.

The total contents of the flask are then extracted with ether, the lower watery layer run off and then re-extracted with ether. The united ether extracts are washed until neutral, with water, dried over anhydrous sodium sulfate (the sodium sulfate should be washed with fresh ether before use), and filtered. The ether is evaporated on a water bath and the last traces removed by a stream of hot air at a temperature of 50-60° C., blown into the flask for about 10 minutes. The quantity of material remaining in the flask gives the quantity of fatty alcohol in the original weight of sample.

Other sulfonated products include the sodium salts of the isethionic derivatives of oleic acid, to which the igepons belong. Yet another type are chemically sulfonated amides, usually the sodium salts of taurine derivatives of oleic acid. The different types in relation to the structure of soap may be shown by the following formulas, where R stands for a long carbon chain:

Soap ..... $RCOONa$
Sulfated alcohols ..... $ROSO_3Na$
Sulfonated esters. $RCOOCH_2CH_2SO_3Na$
Sulfonated amides ..... $RCONHCH_2CH_2SO_3Na$

The last type of compound has not as yet attained anything like the popularity of the sulfated alcohols. M. Lovat Hewitt. *Perfumery and Essential Oil Record* **27,** 431-3 (1936).

Products and Processes

Superfatted Soaps

Nonalkaline superfatted soaps are made by homogenizing or emulsifying (until free alkali cannot be detected), a mixture of fats, fatty oils, waxes or the like and alkali insufficient for complete saponification in the presence of insoluble metallic soap or the corresponding metal oxide. Solvents such as benzine, trichloroethylene and nitrobenzene may be added during or after saponification. For example, 0.2 per cent of titanium dioxide is finely ground in a portion of fatty acid glycerides, mixed with glycerides and churned with caustic soda solution at 25-30° C. for 1-2 hours. Or 0.3 per cent of sodium zincate is similarly used with caustic potash lye and glyceride. Inzersdorfer Chemische Industrie G.m.b.H. British Patent No. 448,930.

Transparent Soap

A formula for a transparent soap containing glycerine is as follows:

	Parts by Weight
Tallow fatty acids	50
Coconut oil fatty acids	30
Castor oil fatty acids	50
Caustic soda solution, 38° Bé.	62.5
Alcohol	40
Sugar	20
Water	50
Glycerine	10

If it is desired to leave out the glycerine, more alcohol can be used instead. *Seifen-Öl-und Fett-Industrie* **22,** 374 (1936).

Wallpaper Cleaner

A cleaner for walls and wallpaper can be prepared in the form of a doughy mass. A number of products of this kind are on the market. As a base, 10 parts of wheat starch can be warmed with an equal amount of water. The temperature should be kept below the paste-forming stage. This gives a mass which can be kneaded and which is worked up with a concentrated solution containing 1 part of crystallized copper sulfate, 0.5 part of crystallized soda ash and 0.3 part of alum. A similar product can be made with rye flour kneaded up into a doughy mass with a dilute solution of waterglass. A mineral ingredient which acts as an abrasive can be added if desired, in the form of the best grade of pumice. *Seifensieder-Ztg.* **63,** 903.

Textile Soaps

The textile industry uses some 25 to 30 million dollars worth of soap yearly, much of which is bought according to the U. S. Specification P-S-591 for laundry soap. Criteria not covered by the specification include the fact that for wool scouring, it is desirable that the fatty acids of the soap should not have a high melting point and show inclination to set easily in cold weather. The behavior of a soap to oxidation influences is particularly vital if a residue is to be left on a fabric afterwards. It may be noted that aftersmell in scoured pieces can sometimes be traced to magnesium soaps, while the lime soap may be relatively free from this defect.

Some soap users object to the employment of filling material in soap but certain additions may be helpful. Sodium silicate is considered helpful in water of temporary hardness. As a rule however, the addition of extras is best made by the chemist or the scourer when there is call for special alterations. A. H. Pettinger. *Am. Dyestuff Reporter* **25,** 629-30 (1936).

Hydrogenated Oils

A cottonseed-linseed oil mixture was hydrogenated without a catalyst at 300° C., the reaction being nearly complete in 4-5 hours. X-ray diagrams and viscosities were determined on samples taken every 30 minutes during hydrogenation, but the x-ray diagrams of the oils differed little as the reaction proceeded. The x-ray diagram of the free acids gave a final photograph resembling closely that of stearic acid. The viscosity of the oil rose rapidly for the first 2½ hours, then more gradually. The titer of the acids did not change for the first 1½ hours, rose rapidly in the next 2 hours and then remained constant. M. P. Volarovich, G. B. Ravich and K. F. Gusev. *Kolloid-Z.* **76,** 338-41 (1936).

Potassium Soap Solutions

Potassium soaps are improved by incorporating with them a mixture of alkali metaphosphates. Thus, 2-5 per cent of a fused mixture of 3 molecular parts of potassium metaphosphate and 2 parts of sodium metaphosphate is added to a liquid potash soap containing camomile. It forms a clear solution. Chemische Fabrik Joh. A. Benckiser G.m.b.H. and Fritz Draisbach. British Patent No. 448,608.

Shaving Soap Fats

The fats which are suitable for use in shaving soap are rather limited, the most desirable ones being tallow, lard, stearin, and coconut oil. The finest grade of tallow should be used. Off-grade gray tallow or brown tallow whose odor indicates rancidity, should be avoided. Refining will not make it suitable. The acid number of the tallow should not exceed four. The color should be white or yellow. Tallow alone would produce a soap forming a firm and long-lasting lather, but one rather slow to form. By blending with coconut oil, the lather forms more readily and the soap has better keeping qualities.

Fresh, pure, white, edible lard is best suited to the purpose. Technical lard must be carefully refined if edible lard is not available or is too expensive. Soap made from lard is white, odorless, of uniform texture, and lathers freely. Due to the cost of lard, it is usually incorporated only in the highest-grade shaving soaps.

Stearin should be pure white and of extra prime quality. It produces a very hard white soap, very slow to lather in cold water but with marked improvement in hot water. The lather formed is stiff and close, being composed of small bubbles. It is recommended that stearin melting at about 80° C. be used in shaving preparations.

Refined, bleached and deodorized Cochin coconut oil is used. It should not contain more than 3 per cent of free fatty acid calculated as lauric acid. Coconut oil produces an exceptionally hard soap, but also one that is extremely soluble. The lather is very foamy, composed of large bubbles of a non-permanent character.

Less desirable fats which are sometimes included in shaving preparations are cottonseed oil and castor oil. Cottonseed oil is said to aid the formation of a good emulsion and to lend smoothness to the finished soap. Castor oil is sometimes incorporated to increase transparency and reduce the hardness of the soap produced by coconut oil and the hard fats.

A non-fatty ingredient which might also be mentioned is gum tragacanth. This is added in an amount up to 2 per cent to give a firm, close lather, and to produce a glaze or luster on the soap. A. N. Ghose. *Indian Soap J.* **3,** 105-7 (1936).

Water Softener

A new material for softening water is a body of glauconite granules more porous than ordinary glauconite and of lower weight per unit volume. These granules have a permanently high operating exchange value in softening water, the operating exchange value being about 50 per cent greater than that of the original glauconite. The Permutit Co. Canadian Patent No. 361,888.

Brushless Shaving Cream

A brushless shaving cream consists of a plastic emulsion of oily material and aqueous material and includes a chemical compound having oleophilic and hydrophylic groups such as the salt of the sulfuric ester of cetyl alcohol. Water is present in major amount and the other ingredients in minor proportions. Rit Products Corp. Canadian Patent No. 361,734.

Detergent Composition

A complex detergent mixture contains a quickly soluble detergent which exerts its cleansing action on fibrous goods before a substantial part of the less soluble detergent ingredient becomes dissolved. The Electric Smelting and Aluminum Co. Canadian Patent No. 368,834.

Cleaning Emulsion

A cleaning composition consists of an emulsion of sodium lauryl sulfate, a petroleum fraction having a distillation range between 70 and 330° C., and water. H. G. Vail and J. H. Brousseau. Canadian Patent No. 362,153.

Stannous Oleate Antioxidant

The auto-oxidation of textile oleins and oils can be inhibited by addition of 0.1 per cent of stannous oleate, stearate or benzoate. *The Industrial Chemist* **12,** 492 (1936).

Oil Bleach with SO_2

Drying and semi-drying oils can be polymerized in an atmosphere of sulfur dioxide to give a pale colored oil, due to the bleaching action of the gas. The work on polymerization has been carried out primarily for the production of "stand oil" from linseed oil, but the procedure should be equally useful for the polymerization of oils for soap making. *Perfumery & Essential Oil Rec.* **27,** 455-6 (1936).

Drying Soap

Soap to be dried is extruded in a transverse series of string-like lengths, each laid in a zigzag path, on a moving conveyor. The apparatus is described. Charles T. Walter (Swift and Co.). British Patent No. 448,123.

Olive Foots Liquid Soap

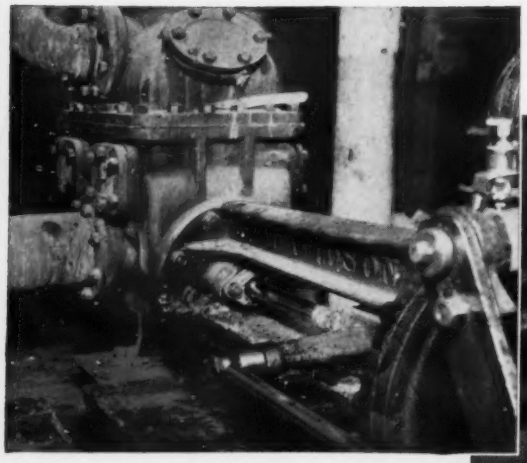
In order to use dark colored sulfur olive oil for liquid soap, it is necessary to remove from it the dirt, impurities, plant residues, proteins, resin-like materials, etc., which it may contain. Purification with lye is prohibited as a rule on account of the high free fatty acid content. Methods are therefore limited to physical processes such as boiling with brine, skimming off the dirty foam, stirring and warming to 80-90° C. with a few per cent of bleaching earth, etc. The last is an advantageous treatment since it not only purifies but improves the color. After filtration the clear filtrate can be used for making liquid soap, but whether the latter will remain clear will depend largely on the precautions taken during preparation of the soap. *Seifensider-Ztg.* **63,** 880 (1936).

Laundry Rinse

An additive to cleaning and rinsing liquids for laundry purposes consists of an acid fluoride salt mixed with an alkylated naphthalenesulfonic acid or a sulfonic acid of a higher fatty alcohol. An example is a mixture of sodium isopropylnaphthalene-sulfonate and sodium acid fluoride. Rütgerswerke A.-G. British Patent No. 449,275.

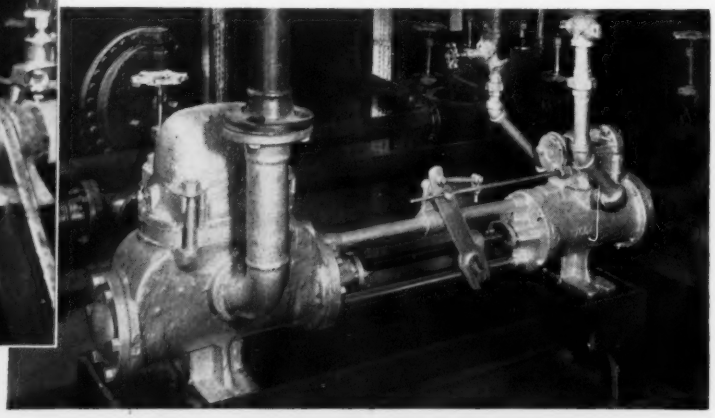
Wetting Agents

Condensation products used as wetting agents for the treatment of textiles, leather, etc., are prepared from mixtures of simple aminocarboxylic acids such as are obtained in the total hydrolysis of protein materials, by causing such mixtures to react with a derivative of a carboxylic acid, an organic sulfonic acid, a carbonic acid ester or a substituted carbonic acid. The mixtures constituting the starting materials may be obtained by heating with water, acid or alkali,—animal or vegetable materials such as soybean flour, wastes from tanneries and slaughter houses, waste leather, horn, hair and wool. I. G. Farbenindustrie A.-G. British Patent No. 450,467.



Monel Metal pump rods are used in soap and lye pumps at the Colgate-Palmolive-Peet Company's Jersey City plant. The Davidson pump illustrated shows the excellent condition of one of the Monel Metal rods after two years' service.

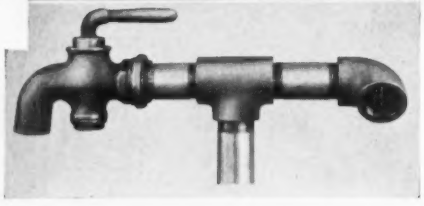
Simplex pump, with Monel Metal rod, handling cottonseed oil in the plant of a prominent soap manufacturer. This rod replaced brass rod previously used here; photo shows its condition after a year and a half of use.

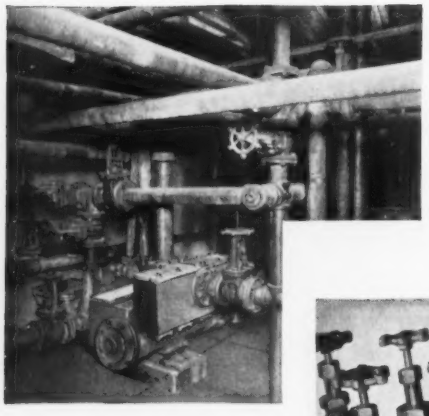


SOAP
CREAMS AND
LOTION
GLYCERINE
FATTY ACIDS
CAUSTIC AND LYE

Pump them with . . . and Pipe them through . . . MONEL METAL

Standard IPS fittings from Monel Metal and Pure Nickel. Plug cocks and hibb cocks with non-galling plugs of grade "H" Monel Metal to prevent seizing are available from the sources for INCO products.





Eight years of service against caustic soda, salt and soap stock and steam is the record for this section of welded Monel Metal pipe and cast Monel Metal elbow taken from heating spider in a soap kettle. Examination showed entire absence of corrosion.

Monel Metal globe and gate valves and piping in service at a Cincinnati soap plant.

NO NEED to tell you that leakage in pumps and piping is frequently due to rust and corrosion. And that both rust and corrosion throw dissolved metal into your pipe lines to contaminate your product.

But do you know how much that active corrosion costs? Especially when it attacks equipment that handles valuable materials such as fine soaps, creams and lotions as well as glycerine, oils, fatty acids, caustic and lye.

How can rust and corrosion be reduced to the minimum? For answer, look at the photographs and captions on this page. Consider the saving that comes from using Monel Metal or Nickel in pumps, valves, pipes, and fittings . . . the end to frequent replacement . . . the protection of your product and fine ingredients.

Monel Metal pump rods or shafts give trouble-free soap plant service that is measured in years. But what's the sense of sending any material *out* of the pump in pure condition . . . only to have it become contaminated in the piping? Rely on Monel Metal and Nickel to pump your valuable products *with* and pipe them *through*.

And where there's risk of seizing, avoid it by using the cast "H" Monel Metal (non-galling characteristic) in combination with the regular grade. For example, by having plug cocks of regular, and plugs of "H" Monel Metal.

We have packed profitable information for you in the following. Ask for them:

"Nickel and Monel Metal in Soap Manufacture"
"Monel Metal in Pumps"
"Monel Metal Accessories"

Standard type Monel Metal and Pure Nickel valves like these, including globe, angle, cross, check, gate, safety Y; also relief valves, cocks and liquid level gauges, with tubing threads or Streamline Solder connection are available from the William Powell Company and other prominent valve manufacturers, or from the regular sources for INCO products.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 WALL STREET NEW YORK, N. Y.

Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

Cleaning Composition

A mixture of a starch product such as corn flour and an alkaline substance such as sodium bicarbonate which allows the starch to form a paste with water is used. A bactericide, dye, abrasives, soaps, etc., may be added. Soc. anon. pour la vente des raccords Suisses. French Patent No. 799,703.

Rancidity Tests

Many investigators agree that the decomposition of fats and oils proceeds in two stages: (1) the hydrolysis of the glycerides and consequent formation of free fatty acids and glycerine, and (2) the oxidation of the fat and glycerine thus formed and interaction of the oxidation products, the resultant products being responsible for the unpleasant taste and odor of rancid fat. Various rancidity tests have been devised but many of them have the objection of involving a personal factor. The active oxygen test of Irwin, Roschen and King appears to be the best method to date of determining in at least some degree the keeping quality of oils and fats. At present the method involves organoleptic tests, but a modification which shows considerable promise involves instead the use of methyl red as an indicator of rancidity development. More work is necessary on this before the results can be called conclusive. E. E. Russell. *Canadian Chem. and Met.* **20,** 346-8 (1936).

Tallow Bleaching

To purify crude tallow, the tallow is melted in a steam-jacketed vessel provided with agitators. Fuller's earth is added and mixed in. Sulfuric acid is added slowly and the mixture stirred for about an hour, then passed through a filter press. The latter does not have to be heated, as the fat retains heat. The degree of bleaching depends on the quality of the raw material and the quantity of fuller's earth and sulfuric acid used. However, carefully the bleaching may have been carried out, and, however, white the resultant tallow may be, it will often happen that the saponified tallow will yield a pink or dirty pink soap. The reason is not clear but it may well be due to some chemical action on the chlorophyll in the tallow. Some tallows are green, and the greener the original tallow, the darker the final soap. *The Industrial Chemist* **12,** 534 (1936).

Petroleum Detergents

Detergent agents are prepared by neutralizing the products obtained by treating mixtures of olefins having more than 6 carbon atoms resulting from the cracking of paraffin or petrolatum, with oxygen-containing mineral acids. As an example, a fraction containing olefins prepared by the destructive distillation of petrolatum or paraffin is sulfated with oleum, neutralized with caustic soda solution and treated with isopropyl alcohol to separate sodium sulfate. After removal of the alcohol, ammonia or other alkali is added to neutralize any acid that may be produced during the drying of the soap. Standard Oil Development Co. British Patent No. 449,169.

Tallow Tree Seed Oil

Tallow or butter tree (*Pentadesma butyracea*) seed oil is obtained from Ceylon and from Southern Nigeria. The saponification number of the oil is about 187 and the Wijs iodine number about 45. The oil is extracted by hot expression or by chemical solvents and must be refined for use in soaps. S. Kandiah. *Trop. Agr.* (Ceylon) **87,** 83-4 (1936).

Speeding Fat Splitting

If the hydrolytic splitting of oil and fats under 25-50 atmosphere's pressure is carried out in the presence of a mixture of split oil and glycerine-water, such as would be left from a previous operation, the time required for the fat splitting is shortened. Metallgesellschaft A.-G. French Patent No. 799,274.

Pumice Hand Cleanser

A paste product suitable as a powerful cleaning agent for the hands but which will be non-caustic is made by mixing the following ingredients:

5 parts powdered curd soap
10 parts soda ash
60 parts fine pumice
25 parts fine sea sand
5-10 per cent of aqueous glycerine solution

Seifensider-Ztg. **63,** 879 (1936).

Darkening of Fatty Acids

Fatty acids were heated in vacuum for 4-5 hours at 95° C. with 0.5 per cent of reagent. Kontakt and Twitchell (naphthalene) preparations caused a greater color increase than Idrapid, Divulson-D and Pfeilring, when heated with or without the presence of air. Stearic acid darkened slightly under any condition. The OH-group protected fatty acids from darkening. The isomerization from oleic to elaidic acid greatly increased the resistance to darkening. Liquid unsaturated acids are the primary cause of coloring in the splitting by Twitchell reagents, and the darkening is greatly intensified by the presence of air in the Twitchell process. Kyosuke Nishizawa and Kazuo Matsumoto. *J. Soc. Chem. Ind.*, Japan **39,** Suppl. binding 257-8 (1936).

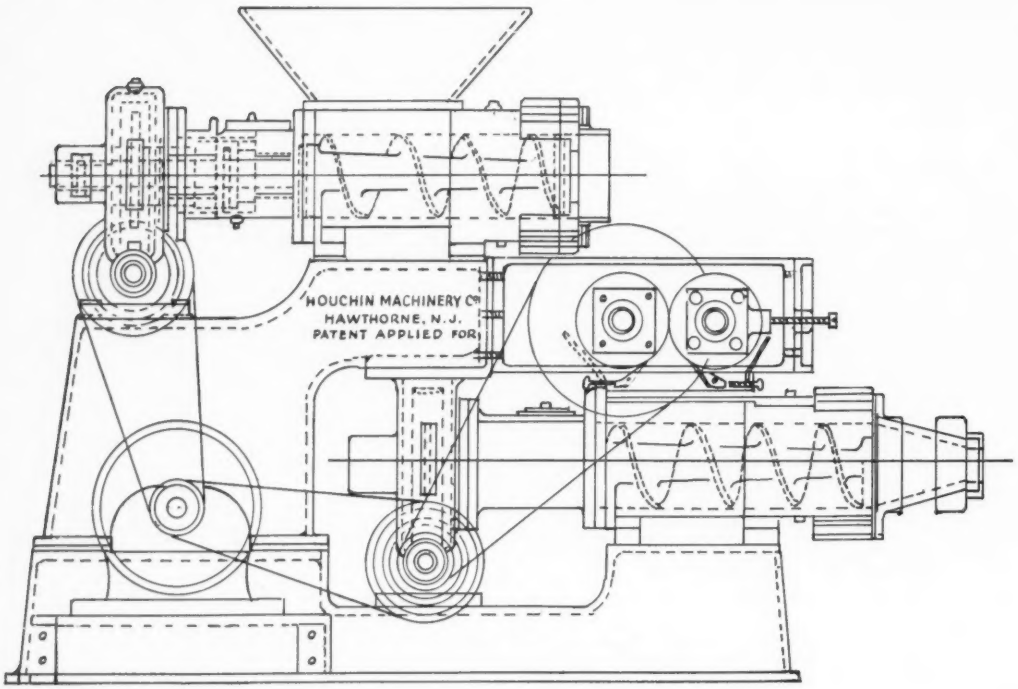
Olive Oil at Low Temperature

Addition of 0.1-0.5 per cent of air-blown cacao butter (iodine number 20), to olive oil keeps the latter free from stearin deposition on storage at 2-4° C. Untreated olive oil under such conditions sets solid within 12 hours, whereas the inhibition effect due to cacao butter persisted for 4 years' storage at 2° C. The effect is highly specific for both fats. *Chem. Trade J. and Chem. Engineer* **99,** 426 (1936).

Fat Refining

Fatty oils and fats are deacidified and bleached by heating them with powdered zinc to above 150° C., with agitation. Günther Adam. German Patent No. 634,043.

HOUCHIN MACHINERY CO., INC. HAWTHORNE, N. J.



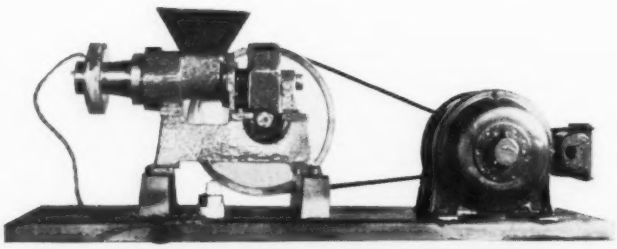
COMBINATION PLODDERS

With Double Head and Milling Attachment With Motor

Soap passing through the first time produces ribbons of soap. Second passing produces a fine finished, well compressed bar of Soap. For the second passing, remove Short Head on Second Plodder, bring Long Finishing Head in place. This Head is fitted with our Electric Heater and Plate Holder. A small stream of water passing through Plodder Cylinders and Rolls of Mill keeps the Soap cool, preventing the Soap from blistering. There is no dropping of Soap. The machine is very easily cleaned. It is excellent for short runs of Soap and saves Horse-Power.

Electric Heater and Plate Holder

By using this unit instead of steam, gas or lamp a uniform heat can be maintained. No more blistered soap. Made to fit all Plodders.



Laboratory Plodder, complete with Motor, Electric Heater, and Plate Holder.

Glycerine Recovery Control

There are several points at which trouble may occur in a glycerine-recovery plant. If the vacuum drops, examine the pump first, and clean or adjust this as required. An inadequate supply of cooling water is a frequent source of trouble. This supply line must be so arranged that air can not be drawn in through the water line in case of water shortage. Steam traps must be watched to see that they are functioning properly. All condensate must be removed but no steam allowed to escape. If condensate shows in the gauge glasses on the calandrias, some of the heating surface is covered with water and the equipment is not operating at full capacity.

The steam pressure for the ejector must be uniform and not below the pressure required to operate it, or else the vacuum will drop rapidly. Vent lines must be open sufficiently to permit the removal of non-condensable gases.

Priming of the liquor in the evaporators is the fault of the liquor and the condition of the lyes should be investigated. If the lyes are too alkaline they may foam. Lyes which have fermented and contain gases in solution also foam. To evaporate such lyes, the liquor level should be held low and the steam supply curtailed to evaporate at a lower rate. The vacuum should be held uniform and the feed regular.

A rapid rise of the vacuum must be carefully avoided, especially after a sudden drop, or the entire charge may be lifted out of the evaporator. Regular examinations should be made for leaking tubes in the calandrias, especially with old tubes. If the rate of evaporation slows down, it may be due to steam leaking into the charge. A water pressure test can be made on the calandrias and leaks will readily show.

If the tubes become salted, the evaporator should be boiled out with water before tubes become filled solid. In the latter case the salt must be bored out, which is tedious and may be injurious to the tubes. Salting out is usually due to improperly treated lyes and the cause should be remedied at once. Carrying the liquor level in the evaporators too low may also cause salting out on the tubes. Oscar H. Wurster. *Oil & Soap* **13,** 283-6 (1936).

Viscosity and Saturation

The viscosities of natural and hydrogenated oil from sunflower seeds, and of linseed, cottonseed, seal, dolphin, mustard, rapeseed and castor oils were determined at various temperatures between 0° and 100° C. The viscosities decreased with increase in iodine numbers of the oils. At temperatures near 0° the viscosity of the oil appeared to be a good indicator of its degree of saturation. Linseed and dolphin oils showed anomalous viscosities at 0°. G. B. Ravish. *Kolloid-Z.* **76,** 341-5 (1936).

Soap Specifications

(*From Page* 47)

should be forwarded to I. Katz, J. Eavenson & Sons, Camden, N. J.

To date there has never been a specification on dry cleaning soap, so this committee headed by G. G. Gaubatz, Jr., National Institute of Dyeing & Cleaning, Silver Springs, Md. had to start from scratch in its work. A rough draft of a proposed specification is being prepared by the committee chairman and will be published in an early issue of SOAP.

The committee on specifications for textile soaps and detergents, headed by Geo. E. Hopkins, Bigelow-Sanford Carpet Co., Thompsonville, Conn., plans to follow the reports of the other committees closely and as these specifications are drawn will make any changes necessary to adapt the specification for textile soaps.

REPORTING for the nomenclature committee, Frederick Kenney of Kenney-Herstein, Inc., New York, asked the membership for a list of suggested terms for definition. He presented the first draft of a series of definitions of common soap terms, as follows:

Powdered Soap is soap in powdered form.

Soap is a product consisting of the result of the combination of equivalent amounts of fatty acids with alkali hydroxides, or the alkaline earth hydroxides, or heavy metal oxides, of organic and volatile bases.

Anhydrous Soap is soap from which all moisture, glycerine, and concomitants have been removed.

Soap Content is the quantity of anhydrous soap present.

Detergent is any substance that will produce the suspension of matter desired to be removed by washing.

Soap Powder is a material having detergent properties, entirely soluble in water, containing not less than 15 per cent anhydrous soap.

Built Soap is a material containing not less than 50 per cent of fatty acids in the form of soap and one or more builders.

Builder is any material used in the production of built soaps that will increase their detergent efficiency.

Scouring is the process of cleaning or removing dirt, grease, etc.

Any comments on the above definitions should be forwarded to Mr. Kenney, 18 E. 41st St., New York.

The next meeting of the committee is scheduled for late March or early April of 1937, so that it will be possible after this meeting to present a report on work completed at the June meeting of the American Society for Testing Materials.

Japanese Olein

Nine commercial Japanese and two foreign oleins were examined. The Japanese oleins had a pale yellow color and melted at 11-20.3° C., owing to the presence of solid fatty acids. The saponification number varied from 194.2 to 212.8, 8 samples being below 200. Wijs iodine number varied from 74.3 to 104-2. Small amounts of linoleic and other highly unsaturated acids were found. The Japanese oleins appeared to be equal in quality to the foreign products. Sei-ichi Ueno. *J. Soc. Chem. Ind.*, Japan **39,** Suppl. binding 284-6 (1936).

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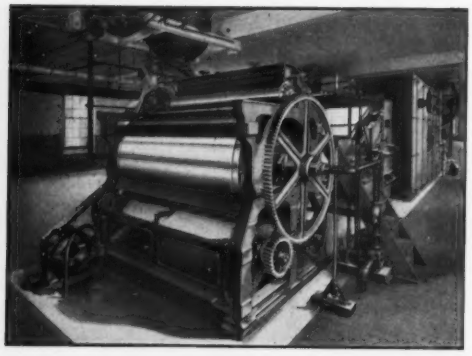

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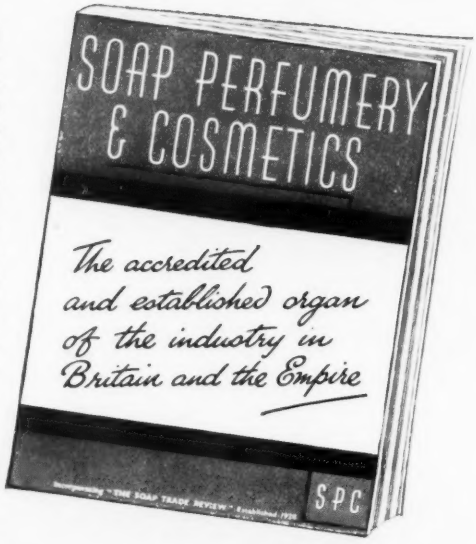

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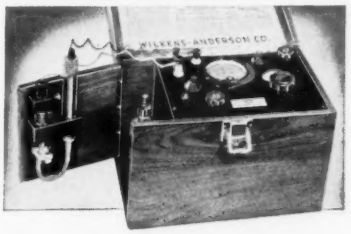
300—New pH Tester

Wilkens-Anderson Co., Chicago is now marketing an improved Coleman pH Electrometer. One of



the new features is a smaller sample cup. Also, the sealed glass electrode has been changed so it will give longer service. A built-in temperature compensator is available along with other accessories. Literature regarding this new instrument, which can be used for testing the pH of all types of soaps as well as a wide range of other products, can be obtained by writing the publishers of SOAP or Wilkens-Anderson Co.

Publications

305—Sanitary Prod. Catalog

Trojan Products & Manufacturing Co., Chicago, has just published a catalog covering the concern's line of cleansers, polishes, soaps, etc., for the jobbing trade. The new book gives complete information regarding all products sold.

304—Water Softening

A. R. Maas Chemical Co., Los Angeles, has just issued a new booklet giving considerable information of interest on the causes for hardness of water and the various methods of water softening in common use. The booklet also lists the complete line of phosphate and industrial chemical specialties which the company offers for use in water softening. Copies available on request. Another booklet on photographic chemicals is also available.

306—Oil Soap Device

Clifton Chemical Co., New York, has just mailed a folder describing its "Hi-Jel Economizer", a shipper and dispenser for oil soap. The apparatus consists of a drum fitted with a faucet. Cold water is poured into an opening in the top of the drum and the liquid oil soap drawn off through the faucet. Copies of the folder are obtainable.

307—Naef Calendar

Chuit, Naef & Co., Geneva, Switzerland, represented in United States by Firmenich & Co., New York, have distributed a very attractive calendar for 1937, illustrated with scenes in the Swiss Alps.

308—Fischbeck Catalog

Charles Fischbeck Co., New York, has just distributed a new price list and catalog of essential oils, aromatic chemicals, finished perfume bases and completed odors which it offers for the soap and sanitary products industry. The catalog includes several handy conversion tables in the appendix. Copies available on request.

309—Dreyer Catalog

P. R. Dreyer, Inc., New York, has just distributed a new catalog of "Drad" Perfume specialties, including products specially designed for soaps, insecticides, liquid shampoos, theatre sprays, para blocks, etc.

301—Rotary Pumps

Beach-Russ Co., New York, has issued Bulletin No. 61 illustrating and describing the company's complete line of rotary liquid pumps.

302—Metal Cleaning

Detroit Rex Products, 13007 Hillview Ave., Detroit, has issued a new 12-page booklet describing the operation of modern equipment for solvent degreasing and alkali cleaning.

303—Liquid Chlorine

Columbia Alkali Co., New York, has issued two new folders—one dealing with a recent addition to their line of chemcial products, liquid chlorine, and a companion folder on another recent addition, sodium bicarbonate. Copies of both folders are available on request.

Lauryl Oil

Lauryl oil is a non-drying oil melting at 32-36° C. and freezing at 23-25°. Two samples contained 2-3.5 per cent of essential oil. Lauryl oil contains about 30 per cent of trilaurin. The Polenske number is dependent on lauric acid. From 0.8 to 1.8 per cent of caprylic acid is present, but no butyric nor caproic acid. J. Pritzker and R. Jungkunz. *Pharm. Acta Helv.* **11,** 177-83 (1936).

Fatty Acids in Soybean Oil

Soybean oil contains about 11.5 per cent of saturated fatty acids and 83.5 per cent of unsaturated fatty acids (iodine number 148.7). Analysis of the fatty acids shows the following composition: Linolenic acid 2.2 per cent, linoleic acid 49.3, oleic acid 32.0, palmitic acid 6.5, stearic acid 4.2, arachidic acid 0.7 and linoceric acid 0.1 per cent. *Les Matieres Grasse* **28,** 10973 (1936).

Repeal Arizona Cosmetic Tax

The governor of Arizona recently signed a bill eliminating the state luxury tax on cosmetics, following the passage of the bill by both houses of the state legislature.

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Complete copies of any patents or trade-mark registration reported below may be obtained by sending 25c for each copy desired to Lancaster, Allwine and Rommel. Any inquiries relating to Patent or Trade-Mark Law will also be freely answered by these attorneys.

No. 2,059,449, Washing Compound, Patented November 3, 1936 by Albert A. Fowler, North Hollywood and Russell M. Otis, Pasadena, California. A washing compound comprising crystals of a water-softening agent carrying a blue water-soluble dye inert to boiling soap solution and having its greatest absorption to visible light at a wave length greater than 6,000 angstroms.

No. 2,059,915, Cleaning Metal and Material Therefor, Patented November 3, 1936 by John E. Ruch, Barberton, Ohio. A material for cleaning metal surfaces comprising metal particles of a formula substantially as follows:—

	Per Cent
Carbon	.125
Manganese	.37
Sulfur	.044
Phosphorus	.012
Silicon	.11
Iron	99.339

No. 2,060,228, Soap, Patented November 10, 1936 by Anthony J. Lorenz, Chicago, Ill., assignor, by direct and mesne assignments, to Lever Brothers Company, a corporation of Maine. A new composition of matter for use with water for hygienic purposes, comprising a soap having incorporated therein an anti-rachitic factor having beneficial dermatological properties, the soap being compatible with the antirachitic factor to retain and make available such properties upon use.

No. 2,061,468, Soap Preparation, Patented November 17, 1936 by Walter Kling, Chemnitz, Germany, assignor to H. Th. Bohme Aktiengesellschaft, Chemnitz, Germany, a corporation of Germany. A bath soap composition adapted to produce a non-alkaline solution upon hydrolysis in water, which comprises an alkali metal salt of a sulphuric acid ester of a higher aliphatic alcohol having from 12 to 18 carbon atoms and about 10 per cent by weight of a superfatting agent selected from the group consisting of lanolin, wool fat and higher aliphatic alcohols having more than eight carbon atoms.

Soap Use in Textiles Assured

From the viewpoint of quantity used and diversity of application, soaps and other detergents are among the most important of the textile "chemicals." Today a mill can purchase straight tallow soap, or an oleate soap, or an olive oil soap in readily soluble chip or flake form and having a specific soap content. Within recent years a variety of fatty alcohols and fatty acid derivatives have entered the picture. These newer detergents are all considerably higher in price than soap, and for that reason it is not expected that they will ever take the place of soap. Their application will be in processes where soap cannot be employed, or where the more satisfactory results obtained justify the additional expense. That many such applications are being found is proved by the fact that consumption of these materials in 1936 was about double that for 1935. *Textile World*, 86, 2314 (1936).

Oil and Solvent Pipet

When oil is to be titrated in a solvent which is less dense than the oil, sampling is conveniently and quickly made with a special pipet instead of by weight. The pipet has two bulbs of suitable size. Above each bulb is a calibration mark and a stop cock. The oil is drawn in to the calibration of the lower pipet, the outside of the pipet wiped off, and solvent drawn in to the calibration of the upper pipet. The oil remains in the bottom of the two bulbs and is automatically rinsed out by the supernatent solvent. W. F. Davidson. *Ind. Eng. Chem., Anal. Ed.* 8, 483 (1936).

By-Product Fish Oil

Fish oil and fish meal are obtained from the sludge remaining after removal of medicinal oil from fish livers by rapidly evaporating off the water under reduced pressure, pressing or centrifuging the cheesy residue and grinding the resulting cake. Gudmundur Jonsson. British Patent No. 448,584.

Shaving Accessories

(*From Page* 33)

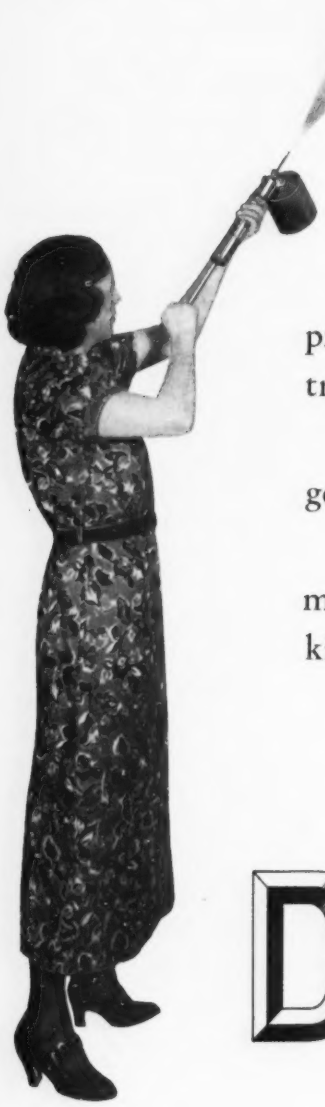
sports, in fact, every morning during the hot season and if a mild deodorant is incorporated for the axillae and groin.

Packaging

THE packaging of shaving accessories is so well done it is hard to criticize or advance suggestions for improvement. Most lotion bottles are low and squat with sprinkler top or constricted neck with ridges or other non-skid features built in.

Styptic pencils are pretty messy in use which suggests a plastic case along the lines of the one-hand lipstick. Some massage creams may take a tip from brushless shave and preparatory creams and get away from interior jar curves and adopt straight lines in shapes not too deep for finger access to the bottom.

Most talc cans are well done also, although a few are too colorful and gaudy while a few others are awkwardly tall. Maybe sometime some merchandiser will offer a clever device or gadget for applying the talc uniformly to a non-uniformly dried face. This writer, for want of something better, has used a powder puff for over two decades. He has never offered any apology for this seeming bit of effeminateness, in turn to fellow army officers, wife, daughters, and now to the readers, if any. Try one!



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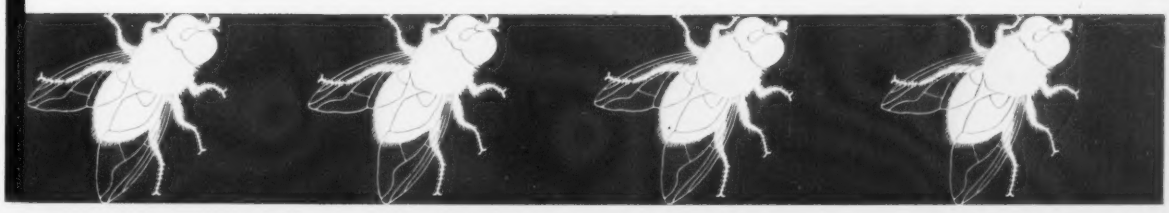

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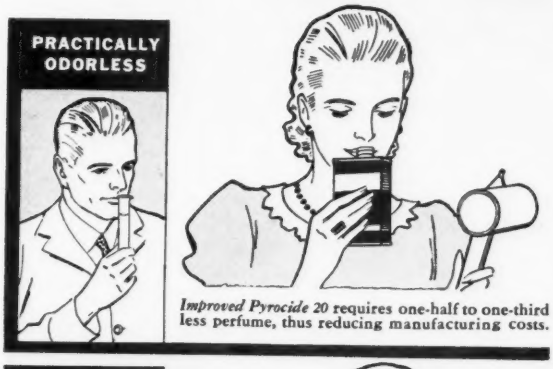

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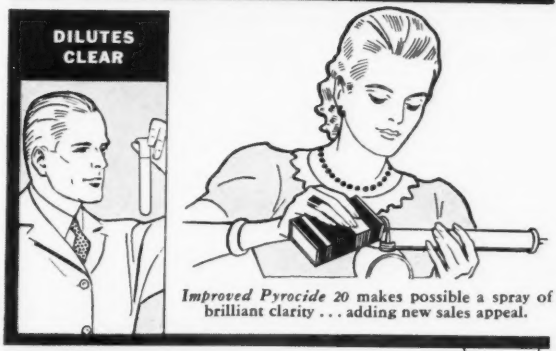

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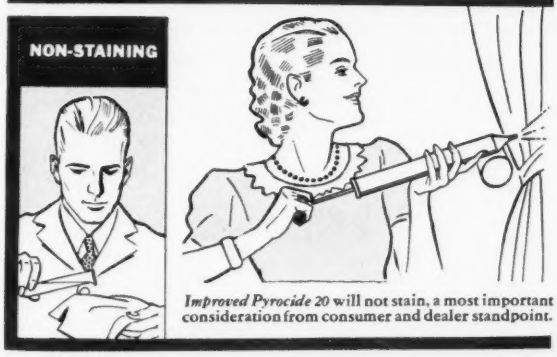

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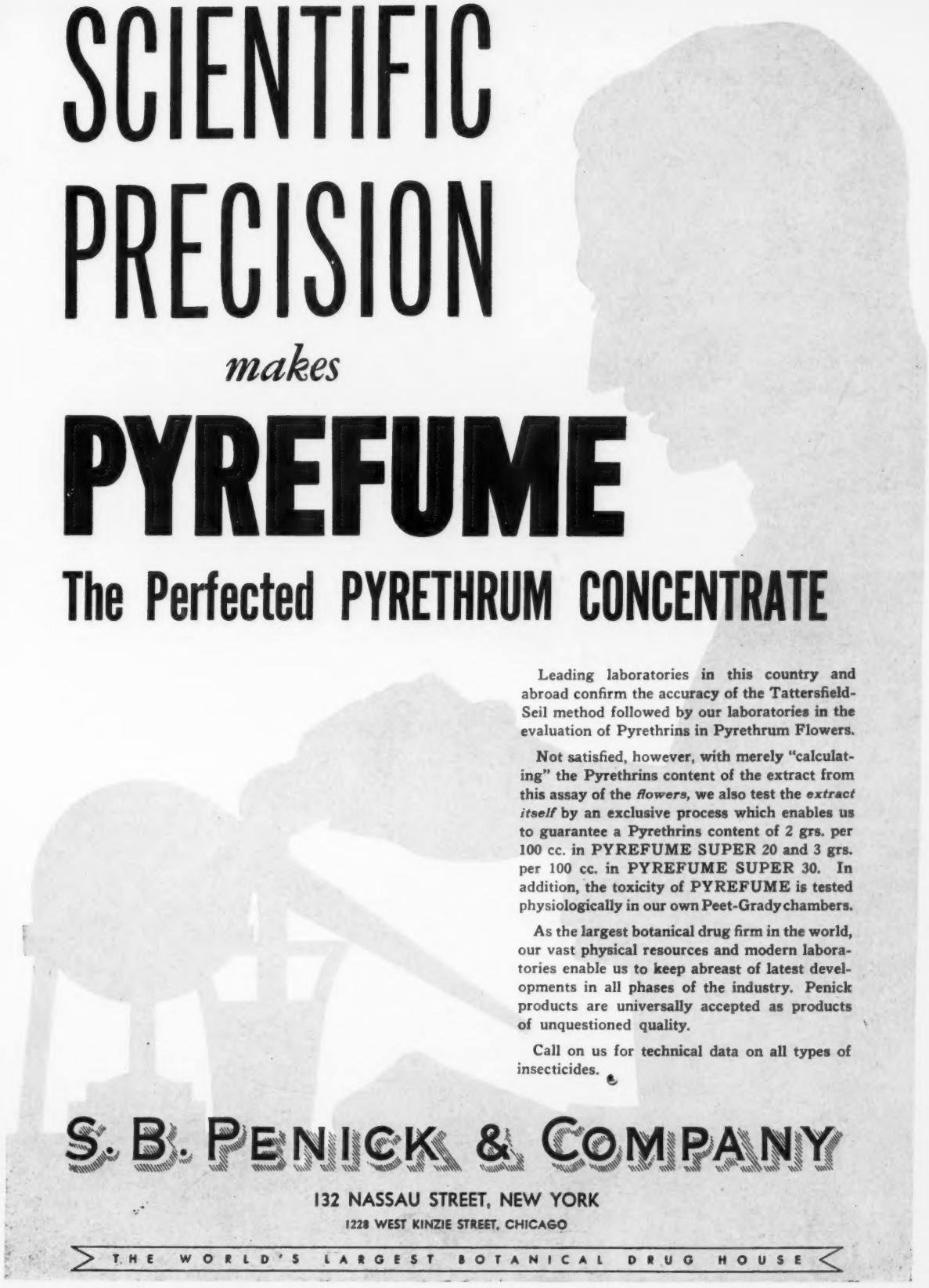

Leading laboratories in this country and abroad confirm the accuracy of the Tattersfield-Seil method followed by our laboratories in the evaluation of Pyrethrins in Pyrethrum Flowers.

Not satisfied, however, with merely "calculating" the Pyrethrins content of the extract from this assay of the *flowers*, we also test the *extract itself* by an exclusive process which enables us to guarantee a Pyrethrins content of 2 grs. per 100 cc. in PYREFUME SUPER 20 and 3 grs. per 100 cc. in PYREFUME SUPER 30. In addition, the toxicity of PYREFUME is tested physiologically in our own Peet-Grady chambers.

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Moth Control and Prevention with Lethane 384 Insecticides

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Available in a large variety of odors and colors, or, odors without color, if desired . . . and priced for economy.

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This Test Proves that McCormick's Pyrethrum and Derris Powders are GROUND FINER to KILL QUICKER

The finest milled Pyrethrum and Derris Powders in the world are produced by McCormick. And there's never any question about the fact that these powders are ground finer—*into more killing particles per ounce.* The fineness of every lot is checked and proved, with mathematical accuracy, in the Tyler Ro-Tap Testing Sieve Shaker pictured above. In addition, these Pyrethrum and Derris Powders are standardized both analytically and biologically in the McCormick laboratories—the most complete testing laboratories in the insecticide industry. (McCormick also produces Pyrethrum and Derris Powders which are stabilized to prolong their toxicity when exposed to light and air.) Our recommendations for the use of these powders are based upon actual performance in extensive field tests. For further information, address: The McCormick Sales Company, Baltimore, Md. In Canada, address: McCormick & Co. (Canada), Ltd., 454 King Street West, Toronto, Ont.

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PYRETHROL 20 • PYRETHRUM POWDER • DERRIS POWDER
DERRIS EXTRACT • DERRIS RESINATE • ROTENONE CRYSTALS

A Market for
SOAPS
SANITARY PRODUCTS
SANITARY ACCESSORIES

Because SOAP thoroughly covers the entire soap, sanitary products and chemical specialty fields, including janitor supply houses as well as manufacturers, the magazine is a market place for all kinds of bulk and private brand products and sanitary accessories. Whether you sell soap bases, finished bulk or private brand soaps of any kind, disinfectants, insecticides, floor or moth products, mops, brushes, floor machines or, in fact, anything in this line that is handled on a jobbing basis, SOAP is the magazine to use for advertising.

Look on page 144 for a complete list of firms advertising bulk products. Most of these advertisers have been using space for several years. In a good many instances they are now using considerably more advertising than they were at the start. What better recommendation as a result getter could SOAP possibly have? As for sanitary accessories—the same firms buy mops, brushes, floor machines, etc., as buy bulk and private brand products for resale.

If you are in position to handle business of this type why not get full information about what SOAP has done for others in the bulk field? Remember—even manufacturers buy bulk and private brand products because few concerns interested in marketing a complete line have facilities for making everything in their own plants. Add to this the requirements of the regular janitor supply industry and you have something worth making a special effort to get.

Advertising Department, SOAP
254 W. 31st St. New York City

We hurried slowly for two years to please a woman

And now your household insecticide can give her three things she demands . . . at a lower cost!

She's the woman who makes your business—by buying the household insecticide you make. For years she has demanded one with high killing power, a pleasant aroma, a clear spray and no staining.

That's why we made haste slowly for two years to give you an improved product with maximum killing power that would give her these things and also save you money.

We didn't rush into print and herald a new discovery with the first laboratory sample. We tested in the laboratory, tested in the field, kept right on testing until we had a product that would please you and please her—deliver what it promises every time.

The result is Improved Pyrocide 20. It's nearly odorless, cuts your perfume costs ½ to ⅔. It dilutes clear with any base oil, makes a spray of brilliant clarity. It will not stain. Improved Pyrocide 20 costs you not one cent more, and because of the reduction in perfume costs is actually cheaper to use.

Again we believe we have demonstrated the value of our policy "First experiment, then test, then offer a thoroughly proven better product."

"When it's from McLaughlin, it's Tested"

McLaughlin Gormley King Company

MANUFACTURING CHEMISTS • • MINNEAPOLIS, MINNESOTA

Years Have Come and Gone but

Baird's

TRADE MARK REG

IS STILL THE SIGN OF QUALITY

We Offer
A Complete Line of
DISINFECTANTS
for the Wholesale Trade Only

Baird & McGuire, Inc.

HOLBROOK, MASS. ST. LOUIS, MO.

National Association of INSECTICIDE DISINFECTANT MANUFACTURERS Incorporated 1914

New York City and New Jersey Representative
EASTERN STATES SUPPLY CO., 127 Troutman St., Brooklyn, N. Y.
Phone: EVergreen 8-2498

SANITARY PRODUCTS

A Section of SOAP

Official Publication, Nat'l. Assn. of Insecticide & Disinfectant Manufacturers

A PRACTICAL basis for the evaluation of liquid household insecticides has been established by the National Association of Insecticide & Disinfectant Manufacturers. Based on a test insecticide solution and the Peet-Grady Method, insecticide manufacturers,—and buyers as well,—are given the tools for the practical grading of insecticides. By comparison with a test insecticide, the warped and misleading figures which were possible where the Peet-Grady Test was used alone, can be avoided. Truly comparable results, irrespective of the laboratory where the tests are made or of deviations in the tests, can be secured on a basis of plus or minus in insect killing power as compared with the basic test insecticide.

The National Association has adopted this new method of testing liquid insecticides as official, along with a practical specification, not with the thought that it is perfect, but with the idea of giving the industry a practical, workable means of evaluation until something better is discovered. It will mean somewhat of a change in insecticide testing and the listing of results. Ordinary Peet-Grady figures of 50, 60, or 70 per cent kill are no longer used except for comparison with figures secured with the test insecticide at the same time. It is this comparison which tells the true story. Results of Peet-Grady Tests run under conditions where 80 and 90 per cent kill were obtained,—or at least claimed,—will no longer be in vogue. The hand-picked Peet-Grady Test to make a poor insecticide look good for sales purposes should pass on. Any Peet-Grady Test must stand the searchlight of comparison with the test insecticide.

Now if buyers can only be educated in the exact meaning of the new test figures,—and will refuse to accept material which does not come up to standard on this basis,—a long step to eliminate the seller of low-grade, and some altogether useless, insecticides will have been made.

OVER a period of twenty years, only three honorary members have been elected by the National Association of Insecticide and Disinfectant Manufacturers. The recent election of Harry W. Cole, for many years secretary and recently a member of the board of governors, as an honorary member, is a well-deserved honor. Mr. Cole has taken a year's leave of absence to go south to regain his health after a prolonged illness. Over the years, since the founding of the Association in 1914, Mr. Cole has probably done more than any other single individual to further the interests of the Association and the industry which it serves.

THE seemingly large number of violations of the Insecticide Act, and the Food & Drugs Act, by manufacturers of insecticides, disinfectants, and other sanitary products which have been made public of late, give the impression that the Food & Drug Administration has greatly increased its activities, or that manufacturers, some of unquestioned good reputation, are becoming careless in the compounding, packaging, and labeling of their products.

New Insecticide Specifications at

ADOPTION of a revised and expanded specification for insecticides was one of the important decisions taken at the 23rd annual meeting of the National Association of Insecticide & Disinfectant Manufacturers, held at the Penn Athletic Club, Philadelphia, December 7 and 8. Other important developments at the meeting included the decision to form two legislative committees, the postponement of action on standardization of disinfectants until the coming June meeting, and the decision to hold the June meeting as usual at the Edgewater Beach Hotel in Chicago.

Due to the large number in attendance at the Philadelphia sessions, it was necessary to split up the convention group among the Penn A. C. and several surrounding hotels. While this may have been a source of inconvenience to some, it was of benefit in another way in stimulating attendance at the business sessions. There were a hundred or more present at each of the four business sessions, with total attendance at the meeting reaching the two hundred level.

The annual election of officers was held on the second day of the meeting, with W. B. Eddy, Rochester Germicide Co., Rochester, N. Y., being re-elected president of the association. W. G. Griesemer, Black Flag Co., Baltimore, was again elected 1st vice-president and J. L. Brenn, Huntington Laboratories, Huntington, Ind., was named 2nd vice-president, taking the place of H. M. Clark, Dr. Hess & Clark, Ashland, Ohio. John Powell, John Powell & Co., New York, was re-elected treasurer and John H. Wright, John H. Wright Co., New York, was re-elected secretary.

The following were elected to serve with the officers on the Board of Governors: H. Marshall Clark, Dr. Hess & Clark, Ashland, O.; N. J. Gothard, Sinclair Refining Co., East Chicago; H. W. Hamilton, White Tar Co. of N. J., Kearny, N. J.; Charles P. McCormick, McCormick & Co., Baltimore; Henry A. Nelson, Chemical Supply Co., Cleveland, O.; S. S. Selig, Selig Co., Atlanta; Wallace Thomas, Gulf Refining Co., Pittsburgh; Robert C. White, Robert C. White Co., Philadelphia; Russell H. Young, Davies-Young Soap Co., Dayton, O.; William J. Zick, Stanco, Inc., New York.

THE call for adoption of standards was made by W. B. Eddy, in his opening president's address. As a step in this direction, the insecticide specification and standardization committee, headed by Wallace Thomas, Gulf Refining Co., Pittsburgh, presented the following specification for insecticides, which was adopted unanimously by the meeting:

Insecticide Specification

1. A household spray oil type insecticide shall be harmless to man and warm-blooded animals when used as directed.

2. When sprayed as directed, it shall not stain fabrics, wallpaper, or general household furnishings.

3. When used in the customary manner it shall not penetrate closed packages of food materials commonly found in homes.

4. It shall have no objectionable odor, and no particular odor shall be specified.

5. It shall have a flashpoint not less than 125° F. when in the Tagliabue closed cup.

6. It is recommended that it be purchased on a direct comparative basis with the official control insecticide of the National Association of Insecticide and Disinfectant Manufacturers, by using the method of test specified on the bottle of the official control insecticide.

The association adopted the following grades (the plus or minus figures designate the points over or under the official control insecticide when the "unknown" and the "control" are stated at the same time and in the same manner):—

AA	+21	Excellent
A	+20 to +11	Good
B	+10 to —10	Equal to official control insecticide
C	—11 to —20	Poor
D	—21	Little value

In his report for the disinfectant specification and standardization committee, J. L. Brenn recommended that action be postponed at least until the June meeting, since, methods of testing now under consideration may be obsolete in a short time. It was voted to table the proposed disinfectant specifications until the June meeting.

Among the guests at the meeting was Hon. S. Davis Wilson, Mayor of Philadelphia, who addressed the afternoon session on December 7. In concluding his talk on Philadelphia civic problems he made public his endorsement of Dr. Robert C. White, Robert C. White Co., a past president of the association and for many years a member of the Board of Governors, as his chosen candidate to succeed him as the next Mayor of Philadelphia.

Another guest at the meeting was Dr. Alvin J. Cox, chief, division of chemistry, California State Department of Agriculture. Dr. Cox told the meeting something about the problems encountered in the enforcement of the new California Caustic Poisons Act, and in some informal remarks in reply to questions from the floor amplified the attitude of his department with regard to label claims for pyrethrum and other insecticides. He stated that it will very definitely not be permitted to advertise pyrethrum insecticide as "harmless to humans" even when this is

23rd Annual I & D Convention

accompanied by the phrase "when used as directed."

In reporting for the membership committee, Russell Young, Davies-Young Soap Co., Dayton, Ohio, advised that seven new members have been elected within the year. Those announced since the last meeting of the board include: *Active*: Allied Drug Products Co., Chattanooga, and U. S. Sanitary Specialties Co., Chicago; *Associate*: Atlantic Refining Co., Philadelphia.

THE following resolutions were reported by the resolutions committee and unanimously adopted:

(1) Whereas it has been recommended by the chairman of the legislative committee that the association have two legislative committees, one to be headed by a person of legal mind to study and advise the association on legislation pertaining to industry as a whole, and one for the purpose of discovering, studying and reporting legislation affecting the insecticide and disinfectant industry, be it resolved that the president appoint such a committee as first indicated above and that the present legislative committee, headed by John H. Wright, continue to function in the latter matters.

(2) Be it resolved that this association go on record as favoring amendment of the Robinson-Patman Act.

(3) Be it resolved that the secretary be instructed to express to Mr. Henry A. Wallace, secretary of the Department of Agriculture, Washington, D. C., the thanks and appreciation of the association for the splendid cooperation of Mr. Lee Strong, Chief, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, in connection with the work done through the cooperative agreement between the Bureau and this Association.

(4) Whereas the association has learned that its former secretary and present member of the Board of Governors, Harry W. Cole, is ill and temporarily retiring from all business activity, be it resolved that the secretary extend to Harry W. Cole the best wishes of the association for his speedy recovery with a notification that he has been elected an honorary member of the National Association of Insecticide and Disinfectant Manufacturers, Inc.

(5) Be it resolved that the secretary be instructed to extend to Charles P. McCormick the sympathy of our members on the recent death of his brother.

(6) Be it resolved that the secretary be instructed to extend to Charles Auerbach the best wishes of the association for the speediest possible recovery from his present illness.

(7) Be it resolved that the secretary be instructed to convey to James Varley the greetings of the association and the hope for his speedy and complete recovery.

(8) Be it resolved that this meeting extend to Dr. Robert C. White and the management of the Penn Athletic Club a rising vote of thanks for the many courtesies extended and for the efficient handling of the many details connected with our convention.

Limitations of the phenol coefficient germicidal test was the subject of a paper by Dr. George Reddish, Lambert Pharmacal Co., St. Louis, who pointed out that the phenol coefficient test is not applicable for testing antiseptics. He warned that those who are interested in testing antiseptics should become acquainted with the special tests which have been developed for this class of germicides.

The application of the Federal Insecticide Act to the labeling of insecticides and fungicides was discussed by Dr. E. L. Griffin, U. S. Dept. of Agriculture, Washington. He advised that in an educational program to clear up labeling mispractices his department has issued notices on labeling, giving suggestions to be kept in mind by manufacturers of insecticides and disinfectants in designing their labels.

Roger V. Wilson of Continental Can Co., Chicago, reported on some tests made by his concern in an attempt to discover whether certain constituents of can linings have any adverse effect on pyrethrum insecticides. Their findings seemed to indicate, he stated, that neither confectioners glaze, solder, rubber or glucose bases, acid soldering flux or specially coated terne plates seemed to have any adverse effect.

A feature of the final session was a floor discussion on the pyrethrum market outlook, led by G. R. Rinke of John Powell & Co. He referred to the difficulty which importers have had with some Japanese shipments and indicated that the better quality material now being produced in Kenya may eventually force Japanese shippers to raise the quality of their shipments. At the same session a paper on fly sprays was presented by Charles Opitz, John Opitz, Inc., New York, in which the thought was brought out that manufacturers of insecticides have been following an unwise policy in offering as "all-purpose" insecticides products which are in reality suitable for fly-spray use alone. He pointed out that such claims have shaken the faith of the buying public to some extent in all insecticides.

The convention closed with an informal dinner at the Penn Athletic Club, the evening of December 8. The affair was preceded by a cocktail party, and a program of entertainment followed the dinner.

Following is the official registration list as issued by Secy. John H. Wright:

Firm	*Representatives*
Allaire Woodward Co.	R. P. Neptun
American Can Co.	C. L. Lovell

(*Turn to Page* 135)

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1936-1937

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Sinclair Refining Co.

Labeling of Insecticides

Application of the Federal Insecticide Act of 1910 to the Labeling of Insecticides and Fungicides.

By Dr. E. L. Griffin*
Senior Chemist, Insecticide Division
Food & Drug Administration

THE program calls this "A clinic on Labeling". The term "clinic" carries with it the idea of disease and its diagnosis and treatment. My contribution will be in the nature of, first, a discussion of the requirements of the Federal Insecticide Act, conformity with which denotes a healthful condition, but non-conformity with which indicates that a study of the case is necessary; and, second, a description of some of the methods employed by the Food and Drug Administration for diagnosing the ailments of insecticides and their labels. A clinic to fulfill its purpose must be complete and I therefore offer no apology for the fact that I shall describe some features of the work which are more or less familiar to you.

The Federal Insecticide Act is primarily an act regulating labeling. It was passed in April 1910 and became effective January 1, 1911, almost twenty-six years ago. Its passage had been desired by insecticide and fungicide manufacturers because the marketing of faulty products or products carrying false claims had resulted in a loss of confidence in all similar preparations and reduction of sales; by entomologists and horticulturists because they wanted to be sure that when the grower followed their recommendations, he could be guided in his choice of insecticides and fungicides by the label statements as to their composition; and by the fruit grower and farmer because they wanted to be able to depend upon the control of pests for which such products were recommended, without injury to their plants.

The law applies to all insecticides and fungicides, including disinfectants, which are imported into or exported from the United States; which are shipped in interstate commerce; or which are marketed in the District of Columbia or the Territories. Insecticides and fungicides shipped in interstate commerce remain within the purview of the act as long as they are in the original unbroken packages. The law sets standards for Paris green and paste lead arsenate. It prohibits adulteration of insecticides and fungicides or marketing them for use on vegetation if they will be injurious to the vegetation when used as directed on the label. It requires that all label statements concerning the article must be truthful. It provides, for articles other than Paris green and lead arsenate paste, that if they contain arsenic in any form, the label must bear a statement of the percentages of total arsenic and of water soluble arsenic, calculated as metallic arsenic. If they contain any inert ingredients, that is, ingredients which are not in themselves effective against the insects or fungi for which the product is intended, the label must bear a plain and correct statement of the names and percentage amounts of each and every inert ingredient, or, in lieu of this, of the names and percentage amounts of each and every active ingredient, together with the total percentage of the inert ingredients.

The law contains no definite provision for educational work to prevent violation, but makes the shipper entirely responsible for his labeling. It has been our view, however, that much misunderstanding could be avoided and more effective consumer protection assured by publication of trade notices relative to the labeling of specific products where misbranding seemed to be particularly prevalent. Therefore, notices have been issued on the labeling of such articles as sodium hypochlorite solutions, animal fly sprays, household fly sprays, paradichlorobenzene used against clothes moths, naphthalene used against clothes moths, and a number of other products. Also, when a manufacturer submits his proposed labeling to us, together with a statement of the composition of the product and results of tests, comment has been furnished in so far as this is possible with the available information.

The Food and Drug Administration is charged with the enforcement of the Insecticide Act, together with the Food and Drugs Act, the Caustic Poison Act, and certain other regulatory laws. In order to cover the country as thoroughly as possible, the Administration maintains sixteen stations, located at strategic points throughout the country and each responsible for supervision of shipments in its specific territory. The stations are grouped into three divisions called the Eastern District, the Central District, and the Western District, with headquarters at New York, Chicago, and San Francisco, respectively.

The same corps of inspectors

* Address before 23rd annual meeting, Natl. Assn. Insecticide & Disinfectant Mfrs., Phila., Dec., 1936.

is used in connection with the inspection work for all of the acts, the enforcement of which is entrusted to the Food and Drug Administration. It is the inspectors' duty to keep in touch with the trade: to know what products subject to the act are being marketed; to find where violation may exist; and to collect samples for further investigation.

In the course of his work, he comes into direct contact with the manufacturer. No one is better able to give the inspector a frank and clear-cut picture of his products than the manufacturer himself. We assume that ordinarily he himself will prefer to furnish the information essential for proper enforcement. Usually the inspector is accorded excellent cooperation, but occasionally misunderstanding arises. For example, I note that the November number of SOAP carries an article on inspectors requesting permission of manufacturers to examine records of shipments in order to locate goods for sampling. The author of the article takes the view that this is equivalent to asking the manufacturer to supply evidence for use against himself.

In this connection, I would say that it is the purpose of the Administration to conduct its work as economically and with as little interference with legitimate business as possible. However, when sampling of particular products is in order, the field must be covered thoroughly. To fail to cover any product which might be misbranded would constitute a type of discrimination against competitive products. If the inspector is sent out for a certain sample, he must collect it, provided, of course that it is being shipped in interstate commerce. He might locate shipments by going over the records of freight and express offices or other shipping agencies or by going out into the trade and making inquiry as to where shipments may be found. Shipments can be located in this manner, but while inspectors try to avoid creating suspicion of the article sampled, we find that the mere inquiries about it in the trade raise doubts which we cannot overcome. In view of this, it has been the practice to go direct to the manufacturer for the necessary information. When the matter has been fully explained, it has been our experience that by far the majority of them prefer to handle it this way.

When the samples are collected, they are analyzed by chemists either in one of the field stations above referred to, or at the Washington headquarters. If their labels bear efficacy claims, these are submitted to the entomologist, the plant pathologist, the veterinarian, or the bacteriologist, as the case may require. Where necessary to discover the accuracy of the claims, suitable tests are carried out. For entomological testing, stations are maintained at Beltsville, Maryland, and Haddon Heights, New Jersey, and a new one is just being established in Florida; for testing of plant fungicides, stations are maintained at Haddon Heights, New Jersey, Corvallis, Oregon, and Sodus, New York. Testing of insecticides for use on animals is carried out at Beltsville, Maryland, and our bacteriological laboratory is in Washington. In addition, where we lack facilities for special types of insecticide testing, these tests are sometimes performed for us by the Bureau of Entomology and Plant Quarantine.

On the basis of the analysis of the product, the reports of tests and the opinions of the Administration's experts, the label is examined to see if it fulfills the requirements of the law. This may be comparatively simple where an accurate analysis by well proven methods is possible and where the claims cover only accepted applications of the product. It is much more difficult where no standardized methods of analysis have been worked out, where the properties of the preparation are not well known, and where the label bears recommendations for a large number of uses, many of which may be entirely untried.

In analyzing products the methods of analysis prescribed by the Association of Official Agricultural Chemists are used, insofar as they are applicable. These methods are being constantly revised and added to, but by no means cover the entire insecticide field. When A. O. A. C. methods are lacking, we use the best available method, taking into consideration the degree of accuracy which may be expected from it. In most cases complete analyses are made, but sometimes this is not possible. However, as previously mentioned, the Insecticide Act permits the manufacturer to state either the names and percentage amounts of each inert ingredient, or the names and percentage amounts of each active ingredient, together with the total percentage of the inert ingredients.

In some cases, owing to the inability of our present analytical methods to determine the actual compounds in a product which are active, we have accepted ingredient statements which are a little indefinite. For example, in the case of Bordeaux mixture, the actual active material is probably a mixture of the basic sulfates of copper, but neither the percentages of these compounds, nor their exact formulas are determinable by our present analytical methods. Therefore, we have not raised objection to considering the copper, calculated as metallic copper, as the active ingredient in Bordeaux mixture and preparations containing it.

In preparations containing derris or cube root extractive material, it is known that the rotenone, the deguelin and certain other compounds are insecticidally active. However, there are no practical methods known for identifying and determining the percentages of every one of the active constituents other than rotenone and since it has been found that all of the active constituents of derris root or cube root can be extracted with ethyl ether, no objection is raised to considering this ethyl ether extract, known as "derris resins" or "cube resins", as the active ingredient of derris or cube preparations.

In the case of preparations containing pyrethrum extract, we have in the past been unable to definitely correlate the insecticidal activity of the preparation with the proportion

of pyrethrins as determined by any of the published methods. In view of this, it has not seemed practical to require that the pyrethrins be declared as the active ingredients in pyrethrum preparations. It has been found that petroleum ether will extract all of the active constituents from pyrethrum together with less additional matter than is extracted by most other solvents and therefore no objection has been raised to considering that part of pyrethrum powder which is soluble in petroleum ether as active. Of course, when it becomes possible to make satisfactory determinations of the actual active ingredients of these products, it will be necessary to consider them as the active ingredients in preparing the ingredient statement required by law.

Except where other tests are necessary to decide the accuracy of specific claims, our bacteriological tests are made by the methods described in Department Circular No. 198 "United States Food and Drug Administration Methods of Testing Antiseptics and Disinfectants". The application of the tests to labeling is discussed in this publication. Special difficulty arises in the labeling of sodium hypochlorite solutions and mercury preparations and leaflets have been issued to inform manufacturers of the limitations of these products.

When the labeling claims the use of a product against insects or against plant diseases, tests are made under practical conditions to determine their accuracy. Recently we have tested a large number of household fly sprays. In these tests we use a room of ordinary size rather than depend upon the results in a chamber such as that used in the Peet-Grady method or on the more artificial conditions encountered in other suggested methods. While other methods may be satisfactory where it is desired to compare one insecticide with another, we believe a test which closely duplicates the conditions under which the product will be used in actual practice gives a fairer basis for judging the claims made for it by the manufacturer. It furnished a more definite idea of what will happen when the purchaser applies it in his home.

The room used for our tests is 12 ft. x 10 ft. x 8 ft. high and contains no furniture or furnishings. The flies are bred on the standard media of the Peet-Grady test at a temperature of 80° F. We have been using flies approximately five days old, but have found that two-day old flies are just as satisfactory and most of our present tests use this type of flies. About 100 flies are released in the room and they are then sprayed with 50 cc. of the preparation to be tested. The spray is applied with a continuous hand sprayer which is so directed as to fill the whole room. After the time specified on the label or 10 minutes, if no time is specified, the active flies are counted; the paralyzed flies are gathered up and placed in a recovery cage with sugar for food and kept in a constant temperature room at 80° F. Twenty-four hours later the flies are examined and the percentage of dead flies determined. In order to avoid testing a product against only one or two batches of flies, we prefer to make two tests each week over a period of four weeks, making eight tests per sample. Sometimes in the summer when wild flies are available, the tests on bred flies are duplicated with wild flies. Under ordinary conditions from 10 to 15 per cent more wild flies than bred flies are killed, but late in the fly season there seems to be very little difference in the susceptibility of the two types.

Cattle fly sprays are frequently recommended for use both as killing and as repelling agents. To be effective as killing agents, they must of course be used in such a way that the fly will become enveloped in the spray and they must contain sufficient quantities of active materials such as pyrethrins, organic thiocyanates, or other materials to be effective. Recently it has appeared that many of these sprays were rather low in killing power and it has been necessary to test them to make sure that they will do what is claimed for them. They are ordinarily tested in the same manner as the household fly sprays, though it is probable that the condition under which they will be used will be somewhat more severe. Barns do not ordinarily close as tightly as houses, and it is often impractical to sweep up and dispose of the fallen insects in barns.

Tests of preparations for use against moths are carried out in small closets, using the dosage recommended on the label. Those for use against ants are tested on colonies as they naturally occur in the neighborhood of our laboratory at Beltsville. Sometimes tests are made in other localities where ants of the species desired are available. We maintain gardens and orchards and in these test products intended for use against garden and orchard insects. In the dormant season, products for use against greenhouse insects are tested in our greenhouses.

Now with reference to the control expected from any particular product, I would say that for some preparations such as those intended for use against moths, we expect 100 per cent control. This is practical and necessary. A single moth hole in your best suit or your wife's dress may ruin it. In the case of insecticides for use on plants, we expect a reasonable control of the insects involved. That is, we expect the control to be as good as the grower would get by using standard methods. We do not expect the impossible except where the impossible is claimed on the label.

Drying Pyrethrum Flowers

The method of drying pyrethrum flowers causes very little variation in the pyrethrin content of the flowers. Pyrethrins I and II exist as such in the fresh flowers. Enzymes and moisture have a negligible effect on the synthesis or decomposition of pyrethrins in the process of drying the flowers. Fred Acree, Jr., P. S. Schaffer and H. L. Haller. *J. Econ. Entomol.* **29,** 601-5 (1936).

The Pyrethrum Outlook

By G. R. Rinke*

John Powell & Co., Inc.

TO consider fully the pyrethrum outlook, one should examine the market not only from the viewpoint of the manufacturer of finished insecticides, but also from the viewpoints of the growers and the importers.

As the insecticide manufacturer is chiefly interested in the market outlook from his own standpoint, we can quickly pass over the outlook from that of the growers who are suffering from low prices, due to over-production. We can also rapidly pass over the outlook from the standpoint of the importers, who are handicapped by the poor quality of pyrethrum flowers that have been coming into the United States for a period of more than twelve months, combined with the fact that importers have the disadvantage of low annual dollar sales as a result of depressed prices on pyrethrum products in general.

"What Makes the Market?"

To consider the market outlook from the standpoint of the manufacturer, one naturally asks the question "What makes the market?" The only answer, of course, is supply and demand. Demand is fairly staid and conservative, but by contrast, supply fluctuates considerably. From the manufacturer's standpoint, supply is more important. Therefore, as regards demand, we will simply refer to U. S. imports from all sources of supply, as follows:

Imports of Pyrethrum Flowers

Figures throughout are based largely upon reports of different government departments.

1931	4,521,100 lbs.
1932	12,110,700 lbs.
1933	10,434,600 lbs.
1934	10,583,073 lbs.
1935	15,445,808 lbs.
1936	8,071,676 lbs. (9 mos.)

As the importations in the last three months of the year are heavy, 1936 promises to show a total not far from that of 1935.

The Supply Situation

American grown pyrethrum: bull. No. 824, U.S.D.A., 1926 pp. 7-9. Efforts to introduce cultivation of pyrethrum in U. S. A. were made as early as 1859 by U.S.D.A. at Washington, D. C. — 250 experimental plants of *Pyrethrum caucasicum* were cultivated in Experimental and Propagating Garden at Washington. *P. roseum* in Cambridge, Mass., 1859, not successful. In the 1880's, U.S.D.A. renewed efforts and seeds were distributed in 22 states. California results were the only successful ones. In 1888, 52 tons of *P. cinerariaefolium* were produced in California. In 1897 *P. roseum* and *P. cinerariaefolium* were well established in So. California. *P. cinerariaefolium* was probably introduced in Cal. by Dalmatians who had settled there and up to 1925, California was only locality to produce pyrethrum on a commercial basis.

"Pyrethrum — A New Crop," R. E. Culbertson published in proceedings of the Second Dearborn Conference of Agriculture, Industry & Science, May, 1936. Since 1927 The Crop Protection Institute has worked with hundreds of experimental plots in 20 different states and has proved that pyrethrum can be successfully grown in the U. S. A. Pyrethrum behaves as an annual in extreme South (77°-97° West longitude)—as a biennial a little farther North—and as a perennial under favorable soil conditions between 37° and 50° north latitude, viz, from North Carolina into Southern Canada. In Western States as a perennial farther South due to elevation and lower rainfall.

In 1932, privately operated Pyrethrum Experimental Farm at Bellevile, Pa. 300-500 lbs. *seed* raised annually. American grown flowers 0.54 per cent to 1.02 per cent Pyrethrins. One planting will last 5-8 years. Cost of seed $1.50 per acre. Cultivation costs $30 to $60 per acre. Returns from $40 to $125 per acre. Yields per acre 400 to 1200 lbs. dried flowers.

"Pyrethrum Investigations in Colorado," Gnadinger, Evans & Corl. Colo. Exp. Station Bull. No. 401 July 1933. Climatic conditions in producing areas in Japan and Yugoslavia are comparable to higher altitude sections of Colo. Flowers grown in experimental plots at Ft. Collins, Colo., since 1929. Grown successfully at 5000 ft. elevation and withstood temperatures as low as 38° below zero F. Average length of growing season at Ft. Collins is 120 days.

"Pyrethrum in Tennessee," B. R. Drain, U. of Tenn., Ag. Exp. Station, Circ. No. 59 Sept. 1936. First work started at Knoxville 1928 with seed from Arlington Farm, Va. Pyrethrin content average from 0.9 per cent to 1 per cent.—high 1.5 per cent. Plants 12" apart in rows 30" apart. This spacing would require 17,424 plants to set 1 acre. The Station's small experimental plots yielded at rate of 1000 lbs. dried blos-

* Address before 23rd Annual Meeting, Natl. Assn. Insecticide & Disinfectant Mfrs., Phila., Dec. 1936.

soms per acre. Tennessee crops matures in last of May.

"Pyrethrum Flowers"—C. B. Gnadinger, 1936. Semi-commercial plantings have failed in Florida, Michigan and Kentucky. In Kentucky the failure was due to mild winters which failed to throw plants into dormancy, resulting in injury during sudden cold periods. Other failures due to disease and possibly improper cultural methods. The possibility of growing pyrethrum in the Virgin Islands has been considered.

To judge the value of U. S. flowers we mention a few characteristic tests made by our laboratories. In April 1935 we examined a sample of flowers grown in Champaign, Ill., at the Illinois Ag. Exp. Station. Flowers separated from stems contained 0.45 per cent pyrethrins. Stems were present in amount of 72 per cent. Harvesting is main problem in U.S.A. At present there is no successful harvesting machine which will do the separating of flowers from stems as cheaply and efficiently as can be done by hand labor in countries like Japan where labor is cheap. In September, 1936, we assayed a sample of flowers representing some 20 tons—0.80 per cent pyrethrins and high stem content. Flowers were grown in Pennsylvania. In November, 1936, we assayed a sample of flowers from Tribune (Chicago) Farms in Illinois. —0.98 per cent pyrethrins.

California no longer producing any sizable amount of flowers commercially. Apparently Pennsylvania and Colorado are chief commercial producing areas today, where flowers as high as 1.8 per cent test have been grown.

We have been informed recently that sponsors of the Pennsylvania cultivation have shown a lessening interest in the project, but that the local farmers are willing to continue the production if they can dispose of the harvested flowers at a good market price. So, although flowers can be grown in the U. S. A., high land and labor costs require a high market or subsidy for the farmers.

Japanese Production

About 1888, growing pyrethrum flowers was started in Japan. The story goes that the seeds or plants were obtained from California. The first commercial shipments from Japan are said to have been made in 1893. About one-third of the present acreage is on the mainland, and two-thirds on Hokkaido, but recently more has been produced by mainland crops, on account of the longer growing season, more fertile soil, and higher yield. Mainland flowers are harvested about the middle of June. The Hokkaido harvest is late in August or early in September. The period of harvesting depends upon the weather and may vary somewhat.

The total Japanese 1936 production proably will be about the same as last year, namely around 12,000 tons. Had it not been for unusually wet and cold weather in April and May, which reduced production, Japan otherwise might have produced nearly 15,000 tons, which was estimated would be the case in April 1936.

The following are some of the more important statistics on Japanese productions:—

	Japanese Production Tons	*Japanese Acreage Trade Est.*	*Japanese Acreage Off. Est.**	*Japanese tons exported June, July crop yr.*	*Estimated Carry-over end of June*
1930	5,979	39,532	31,266	3,472	
1931	5,148	40,002	31,609	3,941	
1932	5,107	42,870	34,458	4,389	
1933	6,062	36,115	39,580	5,142	300 tons
1934	7,799	45,840	49,741	5,412	very small
1935	11,700	53,119	.....	8,183†	800 tons
1936	12,000	77,231	.....		2,800 tons

*—Japanese Ministry of Agriculture and Forestry.
†—Source: Japan Monthly Foreign Trade Returns—Preliminary.

Japan consumes about 25 per cent of its production, and four-fifths of the 75 per cent exported goes to the U. S. There has been a noticeable reduction in the quality of Japanese pyrethrum flowers in the 1935 and 1936 exports. Not only are they often poor in physical properties, but, in addition, their total pyrethrin content has been relatively poor. The content of Pyrethrin I to Pyrethrin II runs about 1 to 1.45. Importers have had considerable difficulty with these Japanese shipments. It is not unreasonable to assume that the better quality flowers produced in Kenya, combined with the Kenya Farmers' Association's efforts to ship only first grade material, will result in a keener appreciation on the part of the Japanese that buyers prefer the best quality they can get, without uncertainty as to either physical characteristics or toxicity content.

"Dalmatian" Production

"Dalmatian Flowers" is a rather all-embracing term for pyrethrum flowers grown in the lands bordering the Adriatic and islands in the Adriatic. The flowers seem to be grown, harvested, dried, and, in general, handled in the same manner as they have been for many years. Consequently flowers from that source have become of less and less importance as far as the U. S. is concerned. In fact, in 1935 the total imports from Jugoslavia and Italy, which probably cover practically all shipped to the U. S., as these two countries have the ports from which shipments can be made—show a total of some 220,076 pounds, whereas in 1934 the total, while also small, amounted to 412,217 pounds.

Production in Jugoslavia during 1936 has been estimated at 700 tons, as compared with 632 in 1935, 768 in 1934, and an annual average of 854 tons for the five years ending 1934. Exports from Jugoslavia from 1935 crop Pyrethrum Flowers during the year ending June 30, 1936 total 339 tons, as compared with 326 in the previous twelve month period from 1934 crop, and 654 tons from the 1933 crop, according to a report of the American Agricultural Attache at Belgrade.

Kenya Production

The rapidly increasing importance of Kenya as a new source for pyrethrum makes the supply situation of unusual interest. Kenya production started about 1932, and the first exportations were made in 1934.

Exports in tons:—

	U. S.	United Kingdom	Italy	Holland	Total
1934	31	13	6	..	50
1935	81	60	1	64	206
1936 (6 mos.)	65*	508			573

The 65 tons exported to the U. S. in the first six months of 1936 compared with 508 to the United Kingdom in the same period indicate that a very small percentage is coming to this country this year. However, this is really not a fair reflection of the true situation, because shipments to the U. S. during the last six months of this year have been quite substantial.

Kenya production is completely controlled by the Kenya Farmers' Association, which also has complete control over all exports. Individual production estimates by growers are called for by the K.F.A., which pays the farmer according to the quantity and quality he delivers to the collection center.

Only first grade is exported, and the usual designation is "f.a.q. Kenya Pyrethrum."

Flowers are grown at various elevations. It has been reported, though, that better yields are secured at higher elevations (7,000 to 9,000 feet) and that acreages at the lower elevations are being reduced. The pyrethrum crop is a popular one, now far beyond the experimental stage. Kenya production is planned scientifically to maintain the highest possible standard of quality. Methods of plant selectivity and the like are carefully observed. As a matter of fact, it is not too much to hope that the total pyrethrin content will consistently run as high as 1.7 to 1.8 per cent. The ratio of Pyrethrin I to Pyrethrin II is excellent: about 1 to 1.

Production is continuous throughout the year, but actual production per month depends upon climatic conditions, which may vary from month to month. It is conservatively estimated, however, that deliveries will now exceed 100 tons per month. For 1937 it is expected that the 1,250 ton mark will be passed and production may exceed 1,500 tons. In 1935, Kenya produced 364 tons of flowers. This year, the figure will approximate 1,200 tons.

The substantial drop in prices which occurred during the past eighteen months has retarded increased planting, but with even a modest increase in the price level, quite a material increase in Kenya production may be expected. Although it is hard to make definite predictions, Kenya may be expected to produce annually several thousand tons within a few years.

Supplies of native labor are continually available. Moreover, Kenya claims to have the lowest production cost possible. This is borne out especially in the superiority of Kenya flowers over all other sources and the price premium which this superiority commands. Thus Kenya has completely altered the pyrethrum picture, taking away from Japan its price and quality supremacy.

China's Production

Pyrethrum acreage in China for 1936 is estimated between 1,075 and 1,350 acres, and the output is expected to reach 200,000 pounds. This is probably all consumed in China, and China, like other countries where labor is cheap, can readily increase production if prices warrant.

Bulgaria

There has been an attempt made to stimulate cultivation of pyrethrum in Bulgaria, according to a report from Sofia. In the absence of governmental guarantees, however, peasants have been slow to take to the idea, and it is estimated that the output this year will not exceed 220,000 pounds, most of which will be used by local manufacturers.

Other Countries

Pyrethrum is grown in many lands. In Russia Roseum pyrethrum flowers are grown, and a little of this finds its way to the U. S., for example, some fifteen tons in 1934 and about two tons in 1935. The quality is poor.

Experiments are being conducted to determine the practicability of growing pyrethrum in Southern Rhodesia. France and Spain grow a fair-sized quantity, which is understood to be used in those countries and rarely exported. Pyrethrum is being grown in Central and South American countries, but tests which have been made indicate that the quality is generally poor.

Summary

A new era is unfolding which in all respects promises better quality and buying conditions than have ever before been possible. The reasons for this may be briefly summarized as follows:

1. There is now a wider distribution of production areas than there ever has been, making for a greater degree of security against interruptions of supplies. Not only is there the important growing centers—Dalmatia, Japan, and Kenya, but there are also many other less important producing areas, including the United States.

2. A big step forward lies in the improvement in quality which has resulted from intelligent growing of pyrethrum in Kenya. Here not only production and quality control is exercised, but also serious efforts towards further improvement by plant selectivity and better curing of the flowers are being made. In Kenya, flowers are harvested the year round, and shipment often is made within two to three weeks after harvesting. Kenya is now an important producing country as regards quantity, and it could readily step up its tonnage. Kenya does business on a business-like basis. Export shipments are carefully checked for quality, and if the material is not up to standard and is offered for sale abroad, the fact that it is of lower quality is stated frankly and the price reduced to compensate.

3. Kenya's intent to share in

(*Turn to Page* 112)

Scientific Advances in 1936 in

Disinfectants and Antiseptics

By Dr. Emil Klarmann*
Lehn & Fink Products Corp.

THE advances made in the field of disinfectants and antiseptics during 1936 may be regarded as further developments of certain basic principles previously recognized, rather than as original contributions. It will be attempted to give in the following paragraphs a critical review of those publications which to the reviewer appear to be the most significant.

Methodological Studies

A critical examination of the usefulness of the F.D.A. test in the determination of the antiseptic value of Liquor Antisepticus N.F. was carried out by E. Meyer and E. N. Gathercoal (1). The authors found considerable variation in the resistance of the F.D.A. strain of Staphylococcus aureus even under the prescribed conditions. They are of the opinion that the phenol resistance of the organism studied need not be so strictly standardized except where extremely careful research work is in question. As a result of these considerations, the standard culture of Staphylococcus aureus specified for the testing of Liquor Antisepticus N.F., does not show the resistance of the F.D.A. strain.

The applicability of the phenol coefficient figure as an aid in the preparation of dilutions for the practical use of coal tar disinfectants, was discussed by J. C. Varley (2) and J. C. Varley and G. F. Reddish (3). It was found that dilutions of both, coal tar and cresylic disinfectants corresponding in their germicidal potency with respect to B. typhosus, to a 5 per cent carbolic acid solution, were effective under the conditions of the experiment intended to approximate those of practical use.

A "new" method of testing disinfectants by K. L. Pesch (4) calls for the use of peas as carriers of bacteria. Briefly, it depends upon the preparation of sterile peas and subsequent infection with the microörganism being tested, followed by the treatment of the infected peas with the various dilutions of the disinfectant under consideration.

E. C. McCulloch (5) notes that there exists a close parallel between the relative efficiencies of several germicides belonging to different classes (phenol, cresol compound, formaldehyde, sodium hypochlorite, sodium hydroxide and several dyes) against filtrable virus of fowl pox on one hand, and certain gram-negative microörganisms (Eb. typhi, Salmonella pullorum) on the other. The dilutions as well as the temperature coefficients of each disinfectant were approximately the same when tested against the filtrable viruses and the gram-negative microörganisms, provided that both were grown on media containing fecal matter. These findings suggest that previous reports concerning the exceptionally high resistance to chemical disinfectants of filtrable viruses, may be due to the protective action of the organic matter in which they are present.

The same author with Stella Costigan (6) reported that phenol coefficients obtained with B. typhosus, may give little information as to the comparative value of disinfectants for use in poultry houses.

A recommendation to modify the present F.D.A. method for testing antiseptics recommended for oral use, has been made by M. A. Jacobson (7). Because of certain assumed shortcomings of the F.D.A. method, which in the author's opinion do not sufficiently approximate the practical conditions of use, it is recommended to add sterile saliva in the preparation of dilutions. The proposed modification introduces also a new terminology for the evaluation of antiseptic potency, viz., "the antiseptic unit." Thus a product is said to possess one antiseptic unit when 4 cc. of it plus 1 cc. of sterile saliva is capable of killing .5 cc. of a 24-hour broth culture of the standard F.D.A. Staphylococcus aureus in one minute or less. If the product allows further dilution (each of the dilutions containing 20 per cent of sterile saliva) while showing the required germicidal efficiency, it may be claimed to possess 2, 3 and 4 antiseptic units, depending upon the volume of diluent.

Phenol Derivatives

The research activity in this field of the past several years extended into 1936.

M. C. Hart and E. H. Woodruff (8) prepared a homologous series of 4-n-alkyl-pyrogallols and determined their germicidal action with respect to Es. coli and Staphylococcus aureus. The maximum of germicidal potency against the gram-negative Es. coli is reached with the hexyl derivative (phenol coefficient 38.0) and then drops with a further increase of the weight of the side chain (phenol coefficient of the heptyl-pyrogallol 26.0); in the case of Staphylococcus aureus the maximum is apparently not reached with the heptyl compound (phenol coefficient 50). Thus the "quasi-specific" effect previously observed by Klar-

* Report before the 23rd annual meeting, Natl. Assn. Insecticide & Disinfectant Mfrs., Phila., Dec., 1936.

mann, Shternov and Gates (9) in the case of other phenol derivatives is in evidence in this series of alkyl-pyrogallols. While the series in question contains some comparatively efficient germicides they are not as effective as the corresponding derivatives of phenol and resorcinol.

A patent for the preparation of mono-alkyl derivatives of 4-chloro-resorcinol was issued to R. R. Read (10). B. Klingenfuss (11) obtained a patent covering 4-alkyl and 4-aralkyl dihydro-resorcinols.

A process for the treatment of dihydric phenols with olefines leading to the formation of the corresponding phenol derivatives was patented by V. Ipatieff (12). H. A. Bruson (13) obtained a patent covering the preparation of octyl phenols and their ethers by reacting phenol, cresol, etc., with mixed octanes obtained by polymerization with the aid of sulphuric acid of the 3 isomeric butylenes from cracked petroleum products.

W. E. Austin (14) obtains germicidal and antiseptic compounds of the class of alkyl chloro-dihydroxy-benzenes by introducing a chlorine atom into the corresponding alkyl dihydroxy-benzene (pyrocatechol, resorcinol, hydroquinone) or by introducing the desired alkyl radical into the chloro-dihydroxy-benzene derivative.

The germicidal action of benzyl phenols and their halogen derivatives was studied by T. S. Carsfell and J. A. Doubly (16). These authors found that there exists a wide variance in the behavior of the closely related members of the benzyl series when formulated with sulphonated oil, although the general effect of the latter constituent is to decrease the phenol coefficient. By plotting phenol coefficients against concentrations of sulphonated oil, it is possible to obtain theoretical phenol coefficients for aqueous solutions of the germicides, which cannot be prepared in practice because of their comparative insolubility in water.

Coal Tar Products

The limitations of the B. typhosus phenol coefficient as an index of the general germicidal value of commercial "coal tar" disinfectants are the subject of a study by E. Klarmann and V. A. Shternov (17). It is shown that the alpha- and beta-methyl naphthalenes which constitute the main portion of the "neutral oil" used in the compounding of the so-called "tar-oil" disinfectants, exhibit a comparatively substantial specific antibacterial potency with regard to B. typhosus without showing any comparable effect upon certain other pathogenic microörganisms of epidemiological significance. The adoption of a supplementary phenol coefficient involving the use of a suitable test-organism other than B. typhosus, e.g., Streptococcus hemol. is suggested since a consideration of both the B. typhosus and the Streptococcus hemol. phenol coefficients would supply a much more accurate and complete picture of the germicidal potency of a "coal tar" disinfectant.

The variation of the phenol coefficient of the compound solution of cresol with different oils used for the preparation of the saponaceous component is the subject of an investigation by P. L. Burrin, A. W. Worton and F. E. Bibbins (18). The authors conclude that there are more desirable oils for the manufacture of the cresol compound than linseed oil, now prescribed by the U.S.P.

A patent was issued to Downs & Weiss, Inc. (19), for rendering cresylic acid stable to light by distillation with maleic anhydride.

Chlorine and Chlorine Compounds

S. M. Costigan, J. W. Yates, W. A. Hadfield and E. C. McCulloch (20) studied the effect of hypochlorites of low alkalinity upon Mycobacterium tuberculosis at higher temperatures. Whereas heating suspensions of this microörganism to 60° C. for 5 minutes did not destroy it, hypochlorite solutions of low alkalinity (.12 per cent of calcium hydroxide) containing 50 parts per million of available chlorine, will destroy the microörganism at 50° C. in 2½ minutes, at 55° C. in one minute and at 60° C. in ½ minute. Solutions containing 200 parts per million of chlorine kill at 50° C. in one minute and at 55 and 60° C. in ½ minute or less.

The germicidal efficacy of alkaline hypochlorite solutions in the sterilization of milking machines and cream separators is the subject of an investigation by A. C. Fay, W. J. Cauldfield and W. H. Riddell (21).

According to a recent article (22), the addition of chlorine to dish water is said to be effective in reducing the incidence of respiratory diseases spread by dishes and other tableware. A Government experiment reported to the American Public Health Service, revealed that in 46 restaurants the examiners found an average of 50,000 to 100,000 bacteria per spoon after washing. When chlorine was used in washing and rinsing, the spoons showed from 2 bacteria to none.

Studies conducted in the city of Plainfield with the idea of determining the effectiveness of methods of dish washing in public eating and drinking establishments, revealed that the bacterial count in wash and rinse waters was quite excessive, proving thereby that the methods now in use have only a slight detergent and no bactericidal value (23).

The use of Azochloramide in infected wounds was studied by R. H. Kennedy (24).

According to A. J. Salle and A. S. Lazarus (25), iodine trichloride is a powerful germicide and relatively non-toxic to chick embryo tissue.

Quinoline Derivatives

E. Moness and W. G. Christiansen (26) examined a number of derivatives of 8-hydroxy-quinoline. The same subject was studied by some French investigators. A. Gayraud (27) showed that o-hydroxy-

quinoline sulphate quickly destroys the diphtheria bacillus in vivo and in vitro. P. Courmont, A. Morel, L. Perrot and F. Denard (28) found this compound to inhibit Koch's bacillus in concentrations of from 1:66,000 to 1:100,000.

6 - Methyl - 8 - hydroxy - quinoline hydrochloride is also a powerful antiseptic according to A. Morel, A. Rochaix, L. Perrot and M. Mouton (29). It inhibits the growth of Es. coli in a dilution of 1:50,000, Eb. typhi and Proteus vulgaris in 1:64,000, staphylococci and streptococci in 1:250,000. The corresponding 6 - methyl - 8 - hydroxy - quinoline-5-sulfonic acid, however, is a relatively weak antiseptic; a concentration of about 1:600 is required to inhibit the growth of these bacteria. Thus in this class of antiseptics similar conditions seem to prevail as in the class of phenolic substances where sulfonation decreases the antibacterial potency of the respective phenol or its derivative.

The salicylate and sulfosalicylate of 8-hydroxy-quinoline are powerful antiseptics but less effective than the neutral sulfate. When this compound is sulfonated in the 5 position its antiseptic power is almost completely destroyed, according to A. Morel, A. Rochaix, L. Perrot and A. Pegon (30).

J. Bührmann (31) studied the derivatives of 6-hydroxy-quinoline-4-carboxylic acid and of 4-amino-2-phenyl-quinoline and found some of them to be possessed of considerable inhibitory potency. The growth of pneumococci was inhibited by the following substances, or their hydrochlorides respectively in a 0.01 per cent solution: 4-amino-6-hydroxy - quinoline, 4 - amino - 2 - p - tolyl-quinoline, isobutyl-2-phenyl-4-quinolylaminoacetate, and the propyl ester of 6-hydroxy-quinoline-4-carboxylic acid. Some of these compounds inhibited also the growth of streptococci.

Mercury Compounds

Continuing their work on the evaluation of antiseptics, by contrasting the germicidal action with the toxicity to embryonic tissue, A. J. Salle and A. S. Lazarus tested mercuric chloride (32) and potassium mercuric iodide (33). While three times as toxic to tissue as to bacteria, mercuric chloride nevertheless receives a better rating than some of the newer organic mercurial preparations. On the other hand, potassium mercury iodide was found to be relatively very toxic and considerably less effective than some of the other germicides tested.

A patent covering the preparation of monoacetoxymercurialkylphenolsulfonic acids was granted to E. C. Fanto and A. L. Omohundro (34). The compounds are said to be active germicides and antiseptics.

N. M. Phatak and C. D. Leake (35) studied a series of Furan mercurials and found their germicidal activity against both B. coli and Staphylococcus aureus to be lower than that of the corresponding phenyl mercuric compounds. Unlike in the case of phenolic germicides, here the introduction of an alkyl radical into the mercurated furan ring lowers the antiseptic efficiency. The same is true, incidentally, for the benzene ring as shown, e.g., by a comparison of phenylmercuric chloride with p-tolylmercuric chloride. Halogenation of the furan, as well as of the benzene rings has a deleterious effect on the bactericidal activity of these compounds, also in contrast to the corresponding conditions found in the case of phenol derivatives.

A. Novelli (36) prepared mercury derivatives of a number of diacyl- and dialkyl fluoresceins. The antiseptic activity of these compounds was found to increase with the increasing length of the side chains; the presence of the keto group diminishes it.

W. Braker and W. G. Christiansen (37) prepared a series of mercury derivatives of certain azo dyes, in the hope that they might be efficient as urinary antiseptics. However, they were found to be too insoluble for biological testing.

R. M. Shreve and M. W. Swaney (38) prepared a number of mercury pyrrol derivatives and found them to be highly effective in germicidal power. A patent granted to Lever Bros. (39) covers the addition to soaps of aromatic mercury compounds such as phenyl mercuric nitrate, acetate, benzoate, etc., such addition producing a non-toxic germicidal soap. Another patent refers to the use of mercury compounds of hydrazobenzene, guanidine, phthalimide and other imido compounds. It is claimed that .1 per cent of such a mercury derivative will produce a good germicidal soap, while .5 per cent will make it strongly disinfectant.

C. N. Andersen (40) received a patent for the preparation of arylmercuric heterocyclic carboxylates claimed to possess antiseptic and therapeutic properties.

Continuing their experimental work on the bactericidal action of mixtures of Merthiolate and phenol, K. C. Falk, C. Rosenstein and S. Aplington (41) reported on studies made to determine the concentration and time required to destroy organisms commonly found as contaminants in biological products.

P. L. Garrod (42) found that the minimum concentrations of phenyl mercuric nitrate which serve to inhibit the growth of Staphylococcus aureus in broth, vary considerably with the quantity of Staphylococci introduced.

Antiseptic Dyes

The antiseptic action of 3-carbazolediazonium chloride and of certain other diazonium compounds was studied by C. H. Browning, R. Gulbransen and S. H. Tucker (43). The former compound shows a powerful antiseptic action on Staphylococcus aureus and Es. coli, which is, however, reduced in the presence of serum. Since the destruction of the diazonium group by boiling reduces the antiseptic power by 99 per cent, the activity of the compounds of this class is assumed to be due to the diazonium grouping.

K. A. Kjaer (44), experimenting with a series of euflavine preparations, found them to be slightly effective against Staphylococcus aureus, but considerably so against Pseudomonas aeruginosa.

Perborate

F. C. Kerwin (45) received a patent covering the addition of catalase to sodium perborate which is claimed greatly to accelerate the liberation of oxygen, thereby increasing the antiseptic action of the perborate.

Oligodynamic Action

A patent was granted to G. A. Krause and assigned to Katadyn, Inc. (46), covering an apparatus for the sterilization of liquids by means of oligodynamy. In it the oligodynamically active metal is supplied to the liquid by means of the electric current from electrodes, of which at least the anode consists of such an active metal.

Soaps and Detergents

The effect of the chemical constitution of soaps upon their germicidal properties is the subject of an inquiry by M. Bayliss (47). Pneumococci are found especially susceptible to the action of certain unsaturated soaps, such as sodium oleate, linoleate, linolenate and clupanodonate. Streptococcus lactis is more resistant to the action of soaps than pneumococcus. The hydrogen ion concentration plays a role in the anti-bacterial efficacy of certain soaps, particularly against Es. coli and Staphylococcus aureus. The latter organism is killed by 1 per cent sodium undecylenate at a pH of 8.0, while sodium abietate is effective above a pH of 8.5.

Attention is called hereby to an interesting article on germicidal detergents by A. R. Cade (48).

Biological Materials

It is of extraordinary interest that a potent bactericidal principle has been obtained from surgical maggots of the species Lucilia sericata (49). S. W. Simmons conducted experiments with this substance, using 7 species of bacteria associated with pyogenic infections. Exposures of from 5 to 10 minutes were usually sufficient to kill dense saline and broth suspensions of these organisms. The addition of organic matter had less effect on the potency of this material than on that of ordinary antiseptics. The bactericidal principle is of a non-viable character and is not destroyed by autoclaving for 20 minutes at 10 pounds pressure. The material can be desiccated without apparently losing its potency. Its remarkable bactericidal action probably accounts, in part at least, for the gratifying results obtained in the treatment of certain infections with maggot therapy. Simmon's investigation opens a new field with potentialities of securing antibacterial agents from living matter.

J. M. Sherman and H. M. Hodge (50) demonstrated the presence of a distinct, though relatively mild bactericidal agent in the raw juices from the heads of cabbages and the roots of turnips. No such or similar property was found in juices of carrots, parsnips and cucumbers. The bactericidal action of the two plant juices referred to was demonstrated with Es. coli, as well as with the natural mixed bacterial flora from the exterior of the plant tissues from which the juices were expressed.

Some reports were published of work on the anti-bacterial action of vitamins.

According to V. Drigalski (51), cultures obtained by inoculating media with garden soil are inhibited by the addition of cod liver oil. This inhibition is in evidence, particularly in the case of the gas and spore forming bacteria, and would seem to explain in part the reputed beneficial effect of cod liver oil in wound treatment.

Isabel Holtzinger (52) studied the effect of vitamins on bacterial growth. She found that about 90 units of Vitamin A in combination with 12 units of Vitamin D produced a marked increase in the luxuriance of bacterial growth. Vitamin D alone was still more effective, while carotene inhibited bacterial growth. The latter phenomenon is noteworthy, as carotene is the pro-vitamin A.

Vitamins affect also the production of bacterial toxins. Thus, according to I. J. Kligler (53) the same strain of C. diphtheriae which produces a potent toxin normally, yields only very little of it in the same medium to which 0.05 per cent of ascorbic acid (Vitamin C) has been added.

Thiocyanates

Continuing their work on the bactericidal action of the thiocyanates, G. Lockemann and W. Ulrich (54) directed their attention to alkaline thiocyanates. They found a mutual enhancement of the OH and SCN-ions; the action of the OH-ion, however, is affected less than that of the H-ion by the presence of the SCN-ion. The sensitivity of bacteria to acid or alkaline thiocyanate solutions varies not only with the species but also with the different strains of a single species.

Ointments and Related Products

A. H. Bryan (55) carried out a study of the bactericidal activity of 80 well known U.S.P., N.F., N.N.R. and other ointments and creams. He also studied the invivo efficacy of mouth washes, tooth-pastes and tobacco smoke in inhibiting the growth of the nasal and mouth flora of pathogenic microörganisms over a period of four years. His findings support the clinical and dental evidence of the practical bactericidal value of the regular use of tooth-pastes and mouth washes in keeping down the mouth flora of pathogenic microörganisms.

Th. Sabalitschka and Dürrmann (56) made a study of the relative antiseptic values of phenol, m-cresol, chlorocresol, resorcinol, formic and trichloroacetic acids in the presence of oils, fats, petrolatum and other similar material. Their findings are significant and interesting from the practical viewpoint of com-

pounding salves and ointments with antibacterial properties.

Cadmium Proteinate

Colloidal cadmium proteinate with 5.32 per cent of cadmium has no bactericidal, and only a feeble bacteriostatic action according to W. A. Lott and W. G. Christiansen (57).

Potassium Cyanide

Potassium cyanide kills paratyphoid bacci and B. subtilis in a dilution of 1:1000, but not in 1:10,000. Spores of B. subtilis survive exposure to a 0.1 per cent solution for at least 8 days (57a).

Radiant Energy and Irradiated Materials

F. A. Stevens (58) finds that a sterile solution of sodium chloride shaken with oil of pine retains enough oil to be bactericidal to hemolytic streptococci, and that irradiated pine oil shows stronger bactericidal action than untreated oil, as it has a higher content of peroxides and aldehydes. These compounds are extracted from the oil by shaking with the salt solution; in turn, bacteria absorb and remove the peroxides.

The same author (59) found also that ultra-violet light promotes the formation of peroxides in cod liver oil which are either soluble in or miscible with the sodium chloride solution. These, too, are bactericidal for hemolytic streptococci; by adding reducing substances, such as cysteine or thioglycolic acid, their antibacterial potency is affected.

Incidentally, the photo activity of petrolatum and of paraffin oil irradiated with ultra-violet light in the presence of oxygen is due to the evolution of gaseous peroxides and aldehydes (60). However, neither the irradiated hydrocarbons, nor their oxydation products show any bactericidal effect in vitro.

According to H. R. Curran (61) the destructive effect upon bacterial spores of ultra-violet light generated by a mercury vapor lamp, is enhanced by metallic reflectors. Some reaction products of irradiation were studied, and the possible relationship of these to the lethal action of ultra-violet light was considered. Thus, hydrogen peroxide was found to be a powerful sporicide, very small concentrations of which prevent the germination of many species. Its effectiveness as a bactericidal or bacteriostatic agent, is found to be closely correlated with the presence or absence of active catalase or other peroxidase.

Stevens (62) found also that the germicidal effect (and incidentally the fogging of photographic emulsions) of the vapor from irradiated cod liver and from the ozonide of olive oil are due to substances liberating active oxygen. Ozonides of olive oil and emulsions of ozonides in salt solutions and in serum are also germicidal.

A. Hollaender and W. D. Clans (63) studied the irradiation of dense suspensions of Es. coli with ultra-violet light; by determining the absorption of the incident radiation, they obtained data on the energy of inactivation of Es. coli as a function of the wave length. The absorption curve and the sensitivity curve for Es. coli are found to have a broad maximum at 2650 A.

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Fly Spray--All-Purpose Insecticide?

Should the regular household fly spray be offered as an all-purpose insecticide?

By Charles Opitz*
John Opitz, Inc.

THE answer to the question "Shall Fly Sprays Be Offered As All-Purpose Insecticides?" in my opinion, lies to a large degree in the general reaction to and acceptance of this type of product by the public as an all-purpose insecticide. Manufacturers of fly-sprays must weigh very carefully all of the claims and statements which they make for their product, not only for their own protection but for the general good of the insecticide industry as well. In the past, the confidence of the public in fly sprays has been considerably shaken because of the too broad statements and claims made for these products. It is a well-known fact that in recent years there have been many so-called fly-sprays placed on the market which have little or no value in accomplishing the purpose for which they are intended. Unfortunately, some manufacturers have little regard for the opinion of the public, or for the fact that false claims and statements create an unfavorable opinion of all insecticides.

Based on actual experience and the results of biological tests made in responsible laboratories, it has been found by us that the most effective fly sprays are those made under the following specifications:

A water-white insecticide base oil having an initial boiling point of approximately 350 and an End point of approximately 500.

Toxic ingredient — The type used is a matter of choice by the manufacturer. There are several excellent toxic ingredients available.

The finished product to have a sweet and refreshing odor and to otherwise meet the demands of the standards set down by the Association for this type of product, based on the Peet-Grady test.

To be effective in killing flies and mosquitos, the vapor of the fly spray when sprayed around the room should remain suspended in the air for a sufficient length of time so that it may come in direct contact with the insects. It can be readily understood therefore that when a product of a more volatile nature is used for this purpose, it falls short of doing the work it is supposed to do, because the oil completely vaporizes before sufficient contact is made with the insects. The best results are obtained when a less volatile base oil is used. On the other hand, to use an insecticide base oil which is too slow in drying is distinctly objectionable because of the possibility of a film of oil settling down wherever the spray is used. All told, the necessity for direct contact in killing flies and mosquitos makes the selection of the right kind of insecticide base oil a very important factor.

Now, let us consider this same fly spray in its application against bed bugs. Whereas the product may be effective against bed bugs, it has one very objectionable feature and that is its slow-drying quality. It must be remembered that the average housewife is the largest user of this product and she usually applies it on beds, mattresses, etc. in more or less heavy applications, with the result that it takes a considerable length of time to dry out. Hence, the more desirable type of bed bug liquid is the one of a more volatile nature. If the more volatile base is used, then the matter of fire hazard must also be considered and the liquid should be made to conform to the standard accepted by the National Board of Fire Underwriters, which is a product with a Flash above 100.

In connection with this type of liquid, based on actual experience and biological tests, it has been found by us that the most effective liquids are those of the following specifications:

Water-white insecticide base oil, having an initial boiling point of approximately 311 and an End point of approximately 390.

Toxic ingredient—for this type of product also there is a wide range of toxic ingredients available.

Odor—The one disadvantage to this type of insecticide base oil is that it is not available in the odorless variety and it is therefore sometimes necessary to resort to the use of rather heavy perfumes to give the finished product an acceptable odor.

In view of the facts, as stated above, that a highly desirable feature of a fly spray is that it remain suspended in the air when sprayed around the room and not evaporate too quickly, and that the highly desirable feature in a bed bug liquid is that it evaporate or dry very quickly after it is applied, you will observe that one requirement is just the reverse of the other. Hence the unsuitability of a fly spray as a good bed bug exterminator, or vice versa, is evident.

Now, let us consider the fly spray in its application against roaches. Here again it is admitted that a fly spray can be effective against roaches if it can be made to come into *direct contact* with the roach. Modern buildings have built-in kitchen cabinets and closets, etc., which permit roaches to hide away in most inaccessible places, and, due to the very nature of the roach, it is an almost impossible feat to reach them with a fly spray. The roach really presents a serious problem to the housewife because of the possibility that it may carry germs to

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* Address before the 23rd annual meeting, Natl. Assn. Insecticide & Disinfectant Mfrs., Philadelphia, Dec. 1936.

Comments on the Peet-Grady Test

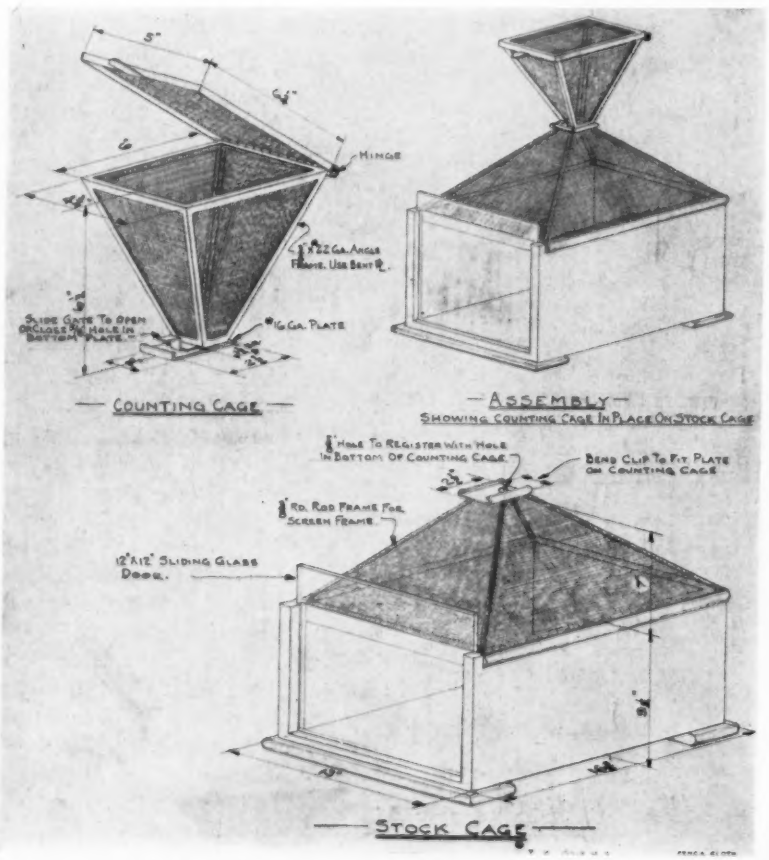
By A. G. Grady*

Sinclair Refining Company

MOST of the members of this association are aware of the fact that the Peet-Grady method for testing sprays of the household type was evolved solely for the purpose of testing the toxicity of certain synthetic compounds and comparing their efficiency against sprays then on the market. That it was readily adopted by some manufacturers was not surprising when one considers that at that time there was no way of checking the killing power of their finished product or, for that matter, the toxicity of the ingredients that went into it except under largely uncontrolled conditions or with tests that gave exceedingly variable results. That the method was adopted at a later date by the association gave rise to the belief that the majority of the members interested had acknowledged its practicability to the extent that they could check the efficiency of their finished spray whether to toxic agent be extracts of pyrethrum, other natural drugs, synthetic compounds or combinations of the same in their own laboratories and, if satisfactory, be reasonably assured of its acceptance by the consumer. That there were others then and even up to the present who have not obtained reasonably accurate results must be admitted and it is hoped that some of the suggestions and refinements in operation embodied in this paper may be of value to those interested in getting better results from the method.

The writer is of the opinion that when an operator gets a "hodge podge" of results, or excessively low or high results, not only with the samples being investigated but with the standard as well, for instance, over a three day period, the trouble lies either in poor equipment or faulty technique, particularly in the insectary. Those of us who have worked with living animals know that the biological variable always remains and that it is only by rigidly controlling the superficial variables that interpretive results can be obtained from any biological test. An operator is placed under a serious handicap if his rearing room and equipment is not conducive to the best handling of the culture. This generally comes to light in spotty results.

As a possible aid to those interested in breeding more uniformly resistant houseflies a description of our insectary where we rear between four and five thousand houseflies per day throughout the year may be of value. This room is double walled throughout, well ventilated and is large enough to provide shelves and racks to hold all culture jars, stock, breeding and observation cages without overcrowding. The temperature of the room is held at approximately 80°F., heat being supplied by electricity and cold air by an air conditioning unit, both thermostatically controlled. While the official method states that the temperature of the insectary should be held at 85°F. we are of the opinion that the lower temperature of 80°F. is more in line


5"
6¼"
6"
HINGE
1" 22 Ga. Angle Frame. Use Bent ℄.
Slide Gate To Open Or Close ½" Hole In Bottom Plate.
16 Ga. Plate
COUNTING CAGE
ASSEMBLY
Showing Counting Cage In Place On Stock Cage
½" Hole To Register With Hole In Bottom Of Counting Cage
Bend Clip To Fit Plate On Counting Cage
¼" Rd. Rod Frame For Screen Frame
12"x12" Sliding Glass Door.
STOCK CAGE

* Address before 23rd annual meeting Natl. Assn. Insecticide & Disinfectant Mfrs., Phila., Dec., 1936.

with the temperatures the insects would be exposed to in their natural state of development hence less forcing.

An ample supply of eggs is supplied by three breeding cages each containing about 150 adult flies. These cages are changed at least once a week with a change of food once a day. A culture is started every day using five battery jars per culture. The culture medium consists of fresh horse manure, yeast cells, water and malt extract. This formula is as follows: Horse manure loosely packed to within two inches from the top of the jar, 175cc of yeast cells suspended in water (1 lb. yeast to 1500cc of water) and malt extract approximately 5cc per jar. We have also used Richardsons formula (2) with good results. To each jar approximately 1,000 eggs are added. The culture is then placed in the insectary and not disturbed until the flies appear. I might add here that we have no accurate check on the number of eggs placed in each jar except that through constant practice the operator in charge of this part of the technique can gauge the number closely enough so that stunted, devitalized insects are rather an exception in our laboratory.

When the adult flies start to emerge they are transferred to stock cages every two hours. This is important as the insects lose their vitality rapidly if confined for any length of time in the culture jars. Also mites, if present, are apt to attach themselves to the insects if they are in a weakened condition. The stock cages used are of the pyramidal type and are large enough to hold, without overcrowding, from 1,000 to 1,500 flies. On the top of each cage is soldered a metal clip into which are fitted the counting cages(3). A counting cage might be best described as a smaller pyramidal cage equipped with a 5/8" guarded opening at the small end and a hinged top. (Design of the stock and counting cages is shown.) With these small cages we are able to count so accurately the number of flies used in each test that it is exceptional when we miss the one hundred mark by over three. The flies in the stock cages are fed about 5cc of milk three times a day supplemented by a piece of sweetened bread which is placed on a watch glass and soaked with water until it is in a soft state before being placed in the cage. This latter food is changed once a day.

The test chambers used are almost exact duplicates of that described in the official method (1). One exception is that a screened port 14 x 14 inches, provided with a tight fitting shutter, is located opposite the door. A 12" fan is placed in back of this opening serving as an aid to the exhaust fan in airing the chamber after each test. Also each wall has only one one-half inch hole centrally located six inches from the ceiling through which the spray is atomized.

Approximately one hundred four day old flies are used in each test. Preceding the test the operator enters the chamber and liberates the insects from the counting cage exercising care, of course, that none escape during his exit. An equal amount of material is sprayed in from four sides, care being taken to allow only the upper part of the spray cloud to roll along the ceiling. The official atomizer as adopted by the association is used during the procedure and all tests are conducted at a temperature of 75 to 85°F.

After the flies have been exposed to the insecticide those down are carefully picked up and placed in an observation cage. A small piece of water soaked gauze is placed in the cage before it goes into the insectary. It will be noted that up to the time the exposed insects have been placed in the observation cages they have not been handled by the operators. After all tests are run for the day another piece of water soaked gauze is placed in each cage to insure a plentiful supply of water to the recovered insects until the following morning. In addition a small dab, about one-half inch square, of ground crackers soaked in milk is placed in each observation cage. The final counts on the number dead are made, of course, the following day.

That many of us have wandered from the technique as outlined in the official method is, of course, true and is to be commended if it is found by the association that the test is benefited by so doing. That there are others who have so altered the technique that it could be called the Peet-Grady method only in that a death chamber is used and houseflies are the test insect is also true. The writer has seen chambers constructed of unpainted wood and fibre board which certainly absorbed some of the materials sprayed into them. Instead of the six foot cube some have been four and five foot cubes and others of varied shapes. Some of these chambers were so placed that the material could only be sprayed in from two sides and were, in turn, impossible to ventilate. I have seen attempts made to rear test insects where no self respecting bug would care to be seen and bred on culture medium that may have produced healthy flies but certainly must have dulled the senses of the operators. Some are using obsolete stock cages and other equipment described in the original papers and committing the fault of continually over crowding which invariably leads to unclean conditions. It is, of course, of paramount importance that cleanliness to be observed at all times if one expects to get worthwhile results from any biological test. That one could expect to get good results working with such equipment and under such conditions is open to question. That such results be brought forth as obtained in the operation of the Peet-Grady method is, in my opinion, open to criticism.

From the data we have gathered during the past few years it is our opinion that the method is sound in evaluating the toxic strength of household sprays at least in our own laboratory. To put it briefly the method if run correctly should show some differential between an excellent and a good spray, a noticeable difference between a good and what might be called a fair spray and a great difference between a fair spray and an inferior product. I think the results we have obtained in testing unknown samples of different toxic strengths

RESULTS OF TESTS WITH OFFICIAL CONTROL INSECTICIDE, PER DAY, PER CAGE, AND PER CHAMBER.

	Cage 1			Cage 2			Cage 3			
	Chamber			*Chamber*			*Chamber*			*Average*
Date	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*of 3 cages*
10-12-36	58	58	67	66	65	68	60	62	72	64.0
10-13-36	60	69	72	69	67	68	67	55	68	66.1
10-14-36	72	62	61	69	64	59	61	58	57	63.6
10-15-36	72	59	60	66	70	72	62	55	54	64.4
10-16-36	65	66	71	67	53	64	67	68	72	65.8
10-19-36	62	72	63	73	66	67	63	70	69	66.5
10-20-36	65	71	73	69	68	70	56	66	60	66.4
10-21-36	61	60	69	63	69	74	58	61	70	65.0
10-22-36	65	64	69	66	61	68	64	60	70	65.2
10-23-36	61	66	72	66	64	62	61	63	72	65.2
10-26-36	66	70	59	56	67	68	56	73	67	64.6
10-27-36	66	66	70	72	71	75	61	67	73	69.0
10-28-36	61	65	62	59	71	69	69	66	70	65.7
10-29-36	53	59	57	59	66	72	65	64	71	62.8
10-30-36	57	54	56	62	74	68	53	55	66	60.5
Final average										64.9

is convincing proof of its practicability particularly so if a better method is not at hand. It is of interest to note at this point that we have been able to check results with three or four other laboratories within three or four per cent.

While our experience with the Official Control Insecticide has been limited, the results so far obtained seem to be quite consistent and agree within a few percentage points with those gathered by two other laboratories. Table I shows the data gathered in percent dead over a period of fifteen days using three chambers and three cages of insects per day. This work was carried out as part of the regular routine in that the Official Control Insecticide was substituted for our regular standard. The result between chambers and cages shows, of course, some variation, however, the final averages of the tests are fairly consistent.

I entertain high hopes that the Official Control Insecticide will aid greatly in lessening the absurd claims and counter claims that have been made in the past by agents in presenting the quality of their products to buyers as regards percentage kill based on the method. It should give both the buyer and the seller a sounder basis upon which the toxic quality of the insecticide can be judged. If, for instance, a manufacturer is sure that his product is ten points more efficient than the Official Control Insecticide he should make that claim and be reasonably assured that other laboratories will be in agreement. However, there should be no splitting of hairs, as it were. If, for instance, one product is ten and another say twelve points above the standard, they should both be classed as good insecticides as far as killing properties are concerned and should be judged on other merits. The buyer on the other hand should be afforded better protection against what might appear to be unreasonably high claims for an insecticide as he can easily get the difference in toxicity between the standard and the product in question from any disinterested laboratory.

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(2) Richardson, H. H., 1932, An Efficient Medium for Rearing House Flies Throughout the Year. Science, 76:350-351.

(3) Modified version of counting cages shown the writer by J. F. Kagy, Iowa State College, Ames, Iowa.

Pyrethrum Outlook

(*From Page* 103)

the world's trade in pyrethrum flowers and its low production cost appear to insure keen rivalry for business. This works against under-production and wide price swings like those of the past, when there were cycles of under-production and over-production.

Price trends are a rank guess, because so many factors enter into the working of supply and demand. It seems likely, however, that prices will work higher, notwithstanding the huge 1935 and 1936 Japanese crops, because prices that have been in effect for the last 12 months or more have been too low to make business really worth while for growers. If the present low prices continue, they should cause a sharp decline in Japanese production in 1938. Kenya likewise is not keen about rapidly increasing production at these low price levels.

The reason given for smaller future price changes from season to season than we have had in the past is predicated largely on the belief that as soon as prices advance a few cents a pound it will be of greater interest to the K. F. A. to step up production. There will probably be more intelligent planning of production of pyrethrum flowers in the future than there has been, whereby the very severe differences from year to year will be minimized. Naturally, over-production of the past year or two has been a cause for concern to important producing countries, as a result of which one hears gossip that they may, for example, in Japan next spring destroy any unwieldy excess stocks to take the pressure off the market and give the farmers a better chance to make money on their efforts.

Particle Size of Insecticides

The particle size of insecticidal dusts can be determined by suspending the dust in a liquid and measuring volume differences of the suspension in sedimentation apparatus which uses a differential manometer. A movement of the meniscus in the manometer corresponding to a change in concentration of 50 mg. per liter in the suspension can easily be detected. The density of the dispersed substance can be determined directly with sufficient accuracy to be used in the calculation of particle size, at least for dusts that do not vary greatly in particle size. Lyle D. Goodhue and Charles M. Smith. *Ind. Eng. Chem. Anal. Ed.* 8, 469-72 (1936).

Fortifying Agents in Disinfectants

By Melvin Fuld*
Fuld Brothers

THIS report covers only those disinfectants that are tested by the F.D.A. method of test, as per circular No. 198 United States Department of Agriculture, December 1931. It is known to the committee that quite a few individual manufacturing organizations have at one time or another studied the problem of a fortifying agent in a disinfectant. This problem was either studied in their own laboratory or they had the work done by some of the commercial testing laboratories. There does not appear to be any pertinent published information on the subject.

A fair study was made through chemical abstracts but little information of practical value was disclosed. The majority of the information was obtained through description of existing fortifying agents offered for sale by manufacturers of these compounds.

Naturally, any study of fortifying agents should include existing materials offered for sale as well as the possibilities of other compounds which are not offered for sale. As the work of this committee is limited, no attempt was made to study any new compound or original possibilities, but to deal only with those compounds which are offered for sale today.

Fortifying agents are any materials which are added to disinfectants to raise their phenol coefficients. There may be three methods of doing this:

1. Adding directly to the finished disinfectant a material of high coefficiency.

2. Adding some material to the oil section of the disinfectant in the making that will raise the finished coefficient.

3. By changing the type of the emulsifying agent to raise the final coefficient.

At this particular time the report will deal with the first two examples only, with the third being left for further study.

This problem should be approached by the different types of disinfectants, namely:

a. Coal Tar Disinfectants.
b. Cresol Disinfectants.
c. Pine Oil Disinfectants.

It has been generally noted by studying the advertising material on the various existing products no mention is made about the use of the specific material in disinfectants in regard to their labeling, and particularly as to whether or not the products are 100 per cent active when added to disinfectants.

A large number of compounds offered for sale are sold under brand names, and it was felt that the study of these products should be primarily left to the study of clinical evidence submitted by these manufacturers. However, these, as well as a number of other compounds were studied bacteriologically by the committee. Unfortunately not all of the bacteriological reports were returned to the committee so that they could be incorporated in this report. The only compound on which a report was returned, was para - tertiary - amyl - phenol. Insoluble in water, readily soluble in alcohol, ether acetone, coal tar acid oil, cresol acid and most organic solvents. Phenol coefficient 60. This product is very soluble in the finished disinfectant. Further studies should be made to determine its effectiveness against other bacteria.

One of the products studied was manufactured by a concern who specializes in manufacturing coal tar products. This manufacturer sells the product incorporated in alcohol, and he primarily sells the product as a disinfectant in animal industry. When the product was evaporated we found that the phenol coefficient was approximately 300. The material in finished form, that is alcohol solution, is supplied to the dairy trade in a strength of 300 to 1, and is recommended to be added in water in the proportion from 10,000 to 50,000. It is also being offered as a fortifier, recommending its use in the ratio of 100 to 150 parts of the sample. No mention is made that the resulting product may have alcohol as an inert.

From literature on another product being offered we found the following:

"X product will interest you as a coefficient booster for coal tar and pine oil disinfectants. It may be added to the oil or the finished disinfectant, 1 gallon to each 49 gallons per coefficient." This company was corresponded with and the following questions were asked:

a. The use of X in soap solutions and its compatibility with organic matter.

b. Clinical evidence as to the

	Phenol Coeff. F.D.A. B. Typhosous 20 C	+ 5% *Para Tertiary Amyl Phenol*
A. Saponified Cresol Compound	1.9 inerts water 14,896	4.8 inerts water 9.896 (I)
B. Coal Tar Disinfectant	5.6	8.4
C. 50% B + 50% I	8.1	
D. Pine Oil Disinfectant	5.0	7.9

* Report General Disinfectant Committee, 23rd annual meeting, Natl. Assn. Insecticide & Disinfectant Mfrs., Phila., Dec., 1936.

efficiency of the product in coal tar, cresol and pine oil disinfectants.

c. Toxicity of the product.

No answer was given to the committee's letter, although a double follow-up was given. A sample of this product was obtained and was tested for use in an antiseptic soap, as it was readily soluble in a 40 per cent soap solution. The results were negative.

Another manufacturer wrote: "X has a phenol coefficient of plus 55 against B thyphosous of 20° Centigrade and is also valuable for incorporation in such products as coal tar disinfectant for raising the phenol coefficient. A sample of this is also forwarded to you." When this company was written to for clinical information they stated that they had none, as the product was primarily used as a preservative and stabilizer in products containing proteins, glue and caseins. When tested chemically this product was found to have a phenol coefficient of 55, but we found when used in coal tar disinfectant it was selective in action against certain bacteria and not against others.

Another large manufacturer writes us: "We make X and Z, both of which are very high in phenol coefficient. We have not been recommending these products for use in disinfectants on account of the difficulty in properly compounding them and the fact that there is some question of stability when compounded."

So you see, on the existing materials the manufacturers themselves do not know a great deal about these products as fortifying agents. All concerns corresponded with constantly ask for more time in submitting their report, so that their merits could be studied. But to the date of writing the report no final clinical evidence was submitted. So it appears that the materials being offered on the market do not seem to have sufficient clinical evidence behind them to allow the manufacturers to really sell these products with any knowing. So reliable companies will have to be careful when they use fortifying agents in disinfectants.

One of the striking things in the use of fortifying agents was their low ready solubility in liquid solution, and practically most of the compounds were only soluble when other materials, such as alkali, alcohol had to be added. This is further confirmed by an article that appeared in Industrial & Engineering Chemistry, Vol. 28, No. 11. "Germicidal Action of Benzylphenols," by Carswell and Doubly.

It seems to us a great deal more information is henceforth coming to the manufacturers of disinfectants on the use of fortifying agents, and we believe that the next year will see considerable scientific literature being offered to the trade in general. Generally speaking, in regard to coal tar disinfectants, there are two known methods at present for the raising of phenol coefficient. One is obtained by the selection of high coefficient coal tar acids, the other is made by the addition of some type of germicide.

According to the Department of Agriculture—"A purchaser of coal tar disinfectant expects to obtain a preparation of coal tar neutral oils and coal tar phenols, as obtained from tar resulting from the distillation of coal, and emulsifying agent such as soap and water. If a fortifying agent is added, even if it is a derivative of coal tar, the resulting product should not be unqualifiedly referred to as 'coal tar disinfectant'."

So that we see that the Government has the opinion that a fortifying agent added to coal tar cannot be classified as a coal tar disinfectant, and the product therefore must be qualified. Therefore, we have an additional problem in analyzing disinfectants, that is, to look for fortifying agents. There must be set up and established definite analytical methods. These methods must be reliable and their legality clearly established. This is going to be a very difficult thing to establish, especially when the fortifying agent is a derivative of coal tar, so there will have to be very close limits set on coal tar neutral oils and coal tar phenols if we are going to separate them from fortifying agents.

In regard to pine oil disinfectants, the Department of Agriculture says: "It is our opinion that when one purchases pine oil disinfectant and he expects to obtain a preparation consisting of pine oil, soap or some other emulsifier and water, he expects it to have all the properties of such material. If a fortifying agent were added to this preparation, even though it were a derivative of pine oil, it would change the properties of the product, and such a material should not be sold as 'pine oil disinfectant'."

Here we have the same thing confronting us as affecting coal tar disinfectant, and the same discussion in regard to the analysis is in order on pine oil disinfectant.

Our investigations of the current practices of the manufacturers of both disinfectants and of fortifying agents leads us to the conclusion that for the best interests of both manufacturers and the public, the members of this Association should pool certain technical and monetary resources for the purpose of—

1. Establishing test methods for all fortified disinfectants of types now on the market. These test methods should include such items as

   a. Selectivity against certain bacteria.

   b. Stability of compound.

   c. Solubility of compound in disinfectant when diluted in water.

2. Discouraging the traffic of fortifying agents which fail in use to meet the requirements for which a disinfectant is normally intended, as the use of such products may tend to undermine public confidence.

3. Study of the problem of labeling fortified disinfectants.

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The residue left in the still in the manufacture of rosin, when emulsified with ammonium caseinate, makes a satisfactory and inexpensive spreader for derris when applied as an insecticide spray. Lyle D. Goodhue and Walter E. Fleming. *J. Econ. Entomol.* **29,** 580-3 (1936).

Toxicity of Rotenone

A study of the toxicity to humans and animals of rotenone-bearing products.

By Dr. H. B. Haag*

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THE growing interest which the derris group of insecticides and its constituents are attracting becomes strikingly apparent when one considers the increasing number of relevant publications to be found in the literature of the past several years. Examination of *Chemical Abstracts* shows about thirty references in 1930, fifty in 1933, and eighty in 1935. Surely one cannot read these papers without realizing the great practical significance attached to the many studies reported.

The feeble attempt embodied in this paper is designed first to present briefly some of the more characteristic physiological effects of derris substances, and secondly to consider their actual and comparative toxicities as determined upon laboratory animals. This later consideration becomes important because of possible exposure of humans and domestic animals in the practical employment of these substances. Inasmuch as the pharmacological literature of derris has been quite recently reviewed in several publications (1), (2), (3), (4), bibliographic references will be made here only when they bear directly on the problem being discussed.

General Physiological Effects

When finely powdered undiluted derris (rotenone content 9.6 per cent) was applied to the human skin, mild irritation was sometimes produced, particularly in those regions where two skin areas touched one another; in our experience this local reaction has practically always disappeared within twenty-four hours after removal of the material. When a 10 per cent ointment of this derris was rubbed over the shaved and slightly scarified skin of white rats daily for a period of ten days, no local or systemic effect was noted. The scarified areas on the treated animals healed just as rapidly and completely as those upon the control rats. The application to eyes of rabbits and guinea pigs of undiluted derris frequently resulted in irritation of the conjunctiva; however, even after a severe reaction had occurred, the eyes resumed their normal appearance in several days. In man, derris, as well as rotenone, produces a sensation of numbness on the mucous membranes of the mouth and throat which lasts for three or four hours after exposure. Laboratory experiments upon animals have demonstrated that derris suspensions have a definite anesthetic effect when applied to nervous tissue for a somewhat prolonged period of time.

Derris (or rotenone) administered by mouth, by vein, or by inhalation to laboratory animals (dogs and cats) promptly caused nausea and vomiting in doses so small as to provoke no other appreciable physiological response. This should be of some practical significance because individuals having inadvertently ingested a quantity of derris would in all probability expel much of the material due to this emetic action. Respiration is markedly stimulated by sub-lethal doses of derris and its constituents; when fatal amounts have been given the initial respiratory stimulation gives way to depression and death invariably results from respiratory failure. If the intoxication is not overwhelming in character, death is preceded by stupor associated with frequent convulsive seizures. The circulatory system is not appreciably affected directly by the members of the derris group even after massive doses. These studies are reported in detail elsewhere (4), (5).

Studies on Toxicity

The acute toxicity of several powdered derris substances (No. 200 mesh) and some of the "active" constituents has been determined on a series of animals by oral feeding under standard laboratory conditions (4), (5), the treated animals being kept under observation for fifteen days. One hesitates to use the word "toxicity" as it frequently tends to instil undue fear, particularly in those individuals who regard any substance having a "toxicity" as a poison." However, it should be borne in mind that all substances have their individual toxicities, even such common household supplies as salt and vinegar, and even water, are toxic in certain quantities, and yet are not looked upon as "poisons." In table I are listed the lethal dose† values which have been determined in our laboratory for various specimens of derris and derris substances. Assuming that man is as sensitive to derris as the most susceptible of the animals studied, then, allowing a maximum spray deposit of .06 grain derris per pound of apples (6), one of us would have to ingest approximately 4,000 derris-sprayed apples to obtain an acutely fatal dose. And this is assuming that none of the derris had deteriorated subsequent to its application to the fruit, a point which will be considered later.

* Address before 23rd annual meeting, Natl. Assn. Insecticide & Disinfectant Mfrs., Phila., Dec., 1936.

† We have arbitrarily selected as the lethal dose the smallest quantity which proved fatal to about 70 per cent of the experimental animals.

Table 1.

ACUTE ORAL TOXICITY OF VARIOUS DERRIS SUBSTANCES

No.	Preparation	Rotenone	% Total CCl_4 Extractives	Lethal Dose (Mgm. X Kgm. Bodyweight) Guinea Pigs	White Rats	Rabbits
1	Derris 1	0.00	21.0		700	2000
2	Derris 2	3.1	17.3		500	1500
3	Derris 3	6.6	20.6		200	700
4	Derris 4	9.6	28.5	75	100	600
5	Cubé	4.7	21.4	200	200	1000
6	Rotenone (7)	...	...	60	700	3000 (.35) V
7	Di-hydro-rotenone (7)	...	...		>2000	
8	Toxicarol (7)	...	...		>1500	
9	Deguelin (7)	...	...		>2000	
10	De-hydro-rotenone (7)	...	...		>2000	

V = Intravenous lethal dose.
> = Greater than.

Table 1 shows that as the rotenone content of derris increases, so does its toxicity, although not always in a direct ratio. The results obtained with sample No. 1, which contained no rotenone, illustrates strikingly, however, that the toxicity of derris does not depend solely upon its rotenone content, a point which has been stressed in several publications (2), (3), (4). This belief is further strengthened by the fact that, if the toxicity of derris were dependent directly upon its rotenone content, then, since sample 4, for instance, contained 9.6 per cent rotenone and since the fatal dose of rotenone is about 3 gm. per kgm. bodyweight, the lethal dose of this specimen of derris for rabbits should have been about 30 gm. x kgm. instead of 0.6 gm. as actually found. The total carbon tetrachloride extractive values likewise are not true criteria of the relative toxicity of derris compounds. As has been strikingly demonstrated in the case of rotenone (2), the size of the derris particles may influence its toxicity.

It is interesting to note that rotenone is about 8,500 times more toxic when given intravenously to rabbits than when given orally; this is truly a remarkable and seldom paralleled difference. This indicates either poor absorption from the gastro-intestinal tract, or rapid detoxification after absorption, or a combination of both factors.

Laboratory experiments have shown that derris can, under certain conditions, definitely cause intoxication when inhaled (3). White rats were placed in a glass chamber and derris dusts of various concentrations were blown in at intervals of five minutes for a duration of thirty seconds, the animals being thus exposed to a thin fog of the dust continually during the course of the experiment. Such tests, admittedly exaggerated, demonstrated that concentrations of derris of 5 per cent and above were fatal after exposures ranging from 10 minutes to several hours, depending upon the concentrations employed. Control tests with the diluents used (talc and acetone extracted derris) were constantly negative.

An interesting phase associated with the toxicology of rotenone and derris which has recently been reported by several investigators (2) (4) deals with the influence of fats upon the oral toxicity of these compounds. Lightbody and Mathews (2) observed that olive oil and butter fat increased the toxicity of rotenone for guinea-pigs and white rats; likewise, Ambrose and Haag (4) noted that olive oil in amounts of 5-10 cc. per kgm. doubled the toxicity of derris for rabbits. These observations, important but by no means necessarily alarming in their portent, suggest the need for further more extended studies along these lines. We were astounded to find that olive oil itself in amounts of 20 cc. could be fatal to rabbits by oral feeding (4).

It should be of some interest to note that it has been repeatedly demonstrated that both derris and rotenone suffer a diminution in their physiological activity upon exposure to sun and air. In our laboratory it has been shown (4) that exposure of dry derris powder to an ultraviolet lamp led to a loss of about 50 per cent of its activity in about forty hours; even more striking losses in activity have been reported by other observers. Such studies indicate that any derris residue left upon sprayed vegetables and fruits will probably have lost, under ordinary conditions, much of its toxicity by the time the treated food materials have reached the consumer. In our experience (4) boiling derris for one-half hour did not change its toxicity for rabbits by oral administration.

The ultimate value of any proposed insecticide will depend largely upon the demonstration of its harmlessness when ingested in quantities approaching those occurring on sprayed food over rather extended periods of time. Studies dealing with the effect of prolonged feeding of rotenone and derris have been reported, or are in the process of being published (5) (6). Unfortunately these experiments deal with quantities of these substances definitely in excess to those which would be encountered practically. In some as yet unpublished experiments, Ambrose and Haag (6) gave rabbits 30 mgm. (½ gr.) of derris per kgm. bodyweight daily for a period of thirty days without noting any gross departure in these animals from normal controls. Doses of 60 mgm. per kgm. and above daily did give definite evidence of a toxic cumulative effect. In view of the relationship between the acute fatal dose of derris and lead arsenate as shown in table 2 and because of the recognized "additive" effect of lead arsenate, as recently shown experimentally in the excellent paper by Smyth and Smyth (8), one may justifiably expect that derris should be less hazardous as a cumulative insecticidal agent, even though the official tolerance set for

(*Turn to Page* 137)

Phenol Coefficient of Antiseptics?

Should the phenol coefficient method for testing disinfectants be used for testing antiseptics?

By Dr. George F. Reddish*
Lambert Pharmacal Company

A MORE fitting title to this paper would be "The Limitations of the Phenol Coefficient," since it should be well known to those interested in germicides that the phenol coefficient method is not applicable for the testing of antiseptics. The phenol coefficient test was developed in England thirty-three years ago and is employed in practically all the civilized countries for the testing of disinfectants for germicidal activity. Its use for this purpose constitutes its principal function today, just as thirty-three years ago it was developed for this particular purpose. If this were the only use made of this test, there would be no reason for discussing the subject at this time.

Although designed especially for testing disinfectants, the phenol coefficient test is today being employed for three purposes: (1) for testing the germicidal efficiency of disinfectants; (2) for determining the germicidal values of pure chemical compounds, and (3) for estimating the value of antiseptics. Although the test should be employed for only the first named use, and limited to only phenol-like compounds, its application in the other fields has gradually developed in recent years. The very nature of the test is such that it is not applicable for many of the uses to which it is being put today, with the result that much confusion has resulted. The purpose of this discussion is to call attention to the unscientific uses that are now being made of this test and to point out the limitations of the test which should be recognized by those interested in this field.

The term "Phenol Coefficient" means the germicidal efficiency of a phenol-like disinfectant against *Bacillus typhosus* as compared to pure phenol under the conditions of a special bacteriological test. The special procedure employed is the Rideal-Walker Test (1) or one of its modifications, such as the Hygienic Laboratory Method (2) or the Food and Drug Administration Method (3). The figure obtained by means of this test is used for two purposes: (1) as a specification figure for selecting disinfectants by the purchaser and (2) as a factor to be used in calculating the dilution to be made for use of such disinfectants in practice. Since five per cent carbolic acid is generally recognized as a good germicide for use on inanimate objects, dilutions of disinfectants are made so that they will equal this standard germicide in bactericidal efficiency. This is done by multiplying the phenol coefficient figure by twenty. Such solutions of phenol-like compounds will kill all the various disease-producing microörganisms which are of epidemiologic importance. Varley and Reddish (4) have recently proved that phenol-like disinfectants when so diluted are effective for this purpose when employed under practical conditions of use. The phenol coefficient test serves a useful purpose in supplying this necessary information and is used for this purpose throughout the world. This is what the test is for and it should be limited to this use.

Although this fact is well known among bacteriologists who are working in this special field, certain chemists have insisted on making use of the test in determining the germicidal efficiency of certain new compounds which they have developed. If the test were employed only in studying the germicidal value of compounds chemically related to phenol there would be no objection from bacteriologists. In their zeal to demonstrate the merits of some of these new chemical compounds, however, many of these chemists have employed the test on substances quite different from carbolic acid and yet compare their activity to this standard germicide. While this error has caused considerable confusion, it is as nothing to the damage that has been done by certain workers in testing pure chemicals which *cannot* be tested by the standard phenol coefficient tests as described and standardized. Some chemists, on finding that their chemical substance cannot be tested by the methods as described, change the test to suit their compounds. They have shown little regard for certain standard features of the test, but have taken the liberty of changing the test to suit themselves. The result has been that the chemical literature contains many papers on germicidal compounds, new and old, in which the phenol coefficients reported are almost worthless.

This is best illustrated by giving two examples. A germicide which is soluble in alcohol but not in water, or only slightly so, was subjected to the phenol coefficient

* Address before 23rd annual meeting, Natl. Assn. Insecticide & Disinfectant Mfrs., Phila., Dec., 1936.

test and found to precipitate out when diluted with water, which is specified in the test. The test was then changed so that a solution of alcohol instead of water was employed for making the dilutions. The result of the test was stated in terms of the phenol coefficient although the standard test had been changed to suit the compound being tested. Another germicide which is soluble in alkali but not in water, or very slightly so, was submitted to the phenol coefficient test and it was found that it would not remain in solution in the dilution water. The test was thereupon changed so that alkali was used for making the dilutions instead of water. The figure obtained was designated as the phenol coefficient, yet the standard test was changed to suit the compound. As a result of taking these liberties with a standard bacteriological test, so-called phenol coefficient figures are given in the literature which are not only mislabeled, but do not represent a true indication of the practical germicidal value of the substances being tested. The data published not only cause confusion but tend to bring the test itself into disrepute because of this confusion. The test is often blamed when discordant results are reported, whereas the unwarranted modifications made by various chemists are entirely responsible.

The most serious misuse of the phenol coefficient test however, has been in the testing of antiseptics by certain uninformed individuals. Antiseptics are not disinfectants—they are not used for killing pathogenic microöganisms on inanimate objects. The phenol coefficient test is not (properly) employed for testing this class of germicides; special tests have been developed for this purpose. Apparently this fact is not widely known since many "authorities" attempt to classify antiseptics by means of the phenol coefficient test. Liquid germicides for use on the body are either marketed ready for use or the dilutions are specified. It is not necessary to calculate the dilution from a phenol coefficient figure. The special test employed for this purpose, developed by Reddish (5), is such that the effectiveness of the antiseptic is indicated by the test itself. The kind of test organism employed, *Staphylococcus aureus*, is the one which must be destroyed when the preparation is used under practical conditions. The numbers of organisms used in the test, 350,000,000, offer the margin of safety so desirable in such tests. Practical and clinical tests have proved that antiseptics passing this severe test are effective in killing pathogenic microörganisms under actual conditions of use. This being the case, then, it is superfluous to determine the phenol coefficient of such germicides. It would serve no useful purpose after it was obtained, since there is no way in which the phenol coefficient of antiseptics may be interpreted in terms of practical value.

Although this fact is recognized by most bacteriologists, certain uninformed sources have made use of the phenol coefficient test in an attempt to classify antiseptics. For example, the standard antiseptic of the National Formulary, Liquor antisepticus, N. F. VI, which easily passes the standard government test for liquid antiseptics (3), has been reported to have a phenol coefficient of 0.02. This figure may seem low and would indicate to some that the preparation would not be an effective germicide. In spite of the low phenol coefficient of Liquor Antisepticus, N. F. VI, this preparation kills 350,000,000 *Staphylococcus aureus* within one minute by the standard Food and Drug Administration Method (3) for liquid antiseptics. The test organism is the most resistant of the non-sporing pathogens, which is a factor of safety; the numbers to be killed under practical conditions of use are much smaller than are used in the test; and the time period of test is shorter than prevails under conditions of use, which is another factor of safety. The test itself is a proper test of the germicidal efficiency of antiseptics. The phenol coefficient test, therefore, is not necessary and actually has no relation to the germicidal value of this class of germicides.

It will be of interest in this connection to compare the phenol coefficient of Liquor antisepticus with that of certain well-known standard germicides. As noted above, five per cent carbolic acid is generally recognized as an effective germicide. When five per cent carbolic acid is submitted to the phenol coefficient test it is shown to have a phenol coefficient of 0.05. As compared to any of the ordinary disinfectants in general use this would be considered a very low figure, and yet five per cent carbolic acid is a good germicide. Although the phenol coefficient of Liquor antisepticus, N. F. VI, is only 0.02, this figure, practically speaking, is quite close to that of five per cent carbolic acid. Neither figure, however, means anything as an index of the germicidal value of each preparation. The same comparisons may be made with Liquor cresolis compositus, U.S.P. This standard disinfectant is recognized generally as a good germicide when used in a two per cent solution. The phenol coefficient of a two per cent solution of Liquor cresolis compositus, U.S.P. is 0.04. Many disinfectants have phenol coefficients ranging up to 20 and even ordinary preparations used for disinfecting purposes have phenol coefficients from 5 to 10. Compared to these disinfectants two per cent Liquor cresolis compositus, U.S.P. has a very low phenol coefficient (0.04), and yet this solution is widely recognized as an effective germicide. The phenol coefficient of Liquor antisepticus, N. F. VI, is low as compared to disinfectants having such figures of 5 to 10, yet it is about the same as the coefficient of two per cent Liquor cresolis compositus, U.S.P., a germicide of known merit.

A more proper comparison would be between two per cent carbolic acid and Liquor antisepticus N. F. VI. Two per cent carbolic acid is used by physicians, in hospitals,

etc., and is found to be an effective germicide. It passes the Food and Drug Administration test for liquid antiseptics in about the same time period as does Liquor antisepticus. This effective solution of carbolic acid—a germicide of recognized merit—has a phenol coefficient of less than 0.02, which is almost exactly the coefficient of Liquor antisepticus. In spite of this fact, Liquor antisepticus is criticized as being an ineffective antiseptic, because of its low phenol coefficient. In other words, criticism has been made of Liquor antisepticus because of its low phenol coefficient and yet this figure is the same as that of another germicide which is recognized by all as an effective antiseptic, namely, two per cent carbolic acid. Such criticism is inconsistent and is due only to ignorance of the limitations of the phenol coefficient test. Liquor antisepticus is the standard antiseptic of the National Formulary. Two per cent carbolic acid is a more or less standard antiseptic in hospitals, etc. Both are effective germicides, although the phenol coefficient of neach is low. The phenol coefficient of antiseptics, therefore, means nothing and cannot be used for interpreting or estimating the germicidal value of such preparations.

The official F. D. A. method for testing antiseptics is not a phenol coefficient test although essentially the same technique is employed. On page 10 of Circular 198, U. S. Department of Agriculture (3) the following statements are made:

"The limitations of the phenol coefficient make it necessary in some cases to judge the germicidal preparation by other tests or by additional tests. This is particularly true of preparations that are not completely soluble or miscible in water. It is also true of certain preparations designated as antiseptics.

"Soluble antiseptics or antiseptics completely miscible with water can be tested, of course, by the procedure already described as the F.D.A. *Staphylococcus aureus* phenol coefficient method. In the testing of these substances, however, the phenol coefficient is not obtained necessarily, the phenol figure being used merely as a check of the resistance of the test organism. The information desired is the concentration which will kill in five minutes."

In spite of this warning that a phenol coefficient test should not be made on antiseptics, and that a phenol coefficient figure should not be applied to antiseptics, a number of instances are on record in which phenol coefficients have been applied to well-known antiseptics. The phenol coefficients of some of these antiseptics are given in "Handbook of Chemistry" (6), (published in 1934) along with a number of disinfectants. Both the *Bacillus typhosus* and *Staphylococcus aureus* phenol coefficient figures are given in most cases. The list of antiseptics and their phenol coefficients as given on page 1185 of this handbook are as follows:

Compound	*Method*	*Temperature*	*Coefficient on B. typhosus*	*Coefficient on Staph. aureus*
Hexyl resorcinol...	Reddish (Modification)	20	72	150
Mercuric chloride..	Reddish	20	100	143
Mercurochrome (220 soluble)....	Reddish (Modification)	20		1.7
Merthiolate (C_2H_5-$HgSC_6H_4CO_2Na$) .	Reddish	20	40-50	40-50
Metaphen (C_{13}-$H_{11}O_2NHg_2$)	Reddish (Modification)	20		1500
Hydrogen peroxide	Rideal-Walker	20	0.01	
Tinct. of iodine U.S.P.	Reddish (Modification)	20	38	
Tinct. of iodine U.S.P., 3% Alcoholic I_2 U.S.P., tinct. dil. C_2H_5OH	Reddish	20	5.8	6.3
Lugol's iodine	A.P.H.A.	20	5.0	5.1
Menthol	Hygienic Laboratory	20	5.1	
Menthol isomers:				
l-Menthol	Rideal-Walker	12-16		5-8
d-Menthol	Rideal-Walker	12-16		7-12
dl-Menthol (racemic)	Rideal-Walker	12-16		7-12
dl-iso-Menthol ..	Rideal-Walker	12-16		7-12
Methyl salicylate..	Hygienic Laboratory	20	1.76	
Picric acid (2-3% in C_2H_5OH)	Rideal-Walker	37	6.0	

What use can be made of these phenol coefficient figures?* As noted above the phenol coefficient does not even indicate the practical value of antiseptics against the various microörganisms met with in practice. Since most antiseptics have special uses this figure cannot be considered as a factor which can be used as an index of the value of such preparations for general use or even for special application. Also, since antiseptics are marketed ready for use or the dilutions specified on the label, the phenol coefficient need not and really cannot be used for determining the proper dilution for use in practice. Many antiseptics act in a manner quite different from phenol so that any comparison to the germ-killing power of carbolic acid is out of the question. In the case of mercury compounds especially, the phenol coefficient figure is most misleading because of the high bacteriostatic property of such preparations. Phenol on the other hand, is actively germicidal, but is very weakly bacteriostatic in dilution. Antiseptics should be tested directly on the bacteria which will be met with in practice, and this can be done by using the special F. D. A. tests for antiseptics. These tests were designed especially for antiseptics and should always be used for testing this special class of preparations.

Recently an antiseptic has appeared on the retail market in

* This is not intended as criticism of the Handbook of Chemistry for publishing these figures, but only of those originally responsible for determining the phenol coefficients of the antiseptics listed.

(*Turn to Page* 121)

Murnick

PYRETHRUM PRODUCTS

Murnick Pyrethrum Extract

Guaranteed to contain 2.00 grams total Pyrethrins per 100 C. C. equivalent to 2.4% total Pyrethrins by weight. Murnick process gives a clear, stable extract, light in color and nearly free from Kerosene odor. It requires less perfume. Every batch is thoroughly tested at the start and finish with complete chemical assay of the Pyrethrum content. No precipitation in "Murnick" Extract, a clear dilution with any base oil; all the inert, useless matter and resin is removed. No stains appearing on material sprayed. Definite killing power, satisfied customers, and repeat business, at no added cost, when your products are based on Murnick Pyrethrum Extract.

Murnick Pyrethrum Powder—

Guaranteed 0.9% total Pyrethrins and milled to a degree of fineness most ideal for dusting purposes.

Murnick Pyrethrum Ground for Percolation—

—Guaranteed to contain 0.9% total Pyrethrins and properly milled for complete and rapid extraction.

Murnick SPECIALTIES

CIMICIDE

A non-poisonous bed bug insecticide of organic origin in concentrated form. Cimicide quickly penetrates, dissolving the eggs and killing the embryo. It has a very high toxicity and quick killing power on bed bugs.

MOTHPROOFING CONCENTRATE

Oil soluble, odorless, stainless, non-poisonous. Tests indicate it is one of the most effective mothproofing agents giving complete protection from moth damage for one year.

RED SQUILL

POWDER-PASTE-EXTRACT—Sure death to rodents, non-toxic to humans and lower animals; chemically and physiologically assayed to maintain high toxicity; supplied in forms most adaptable to your requirements.

WRITE FOR SAMPLES AND LITERATURE

America's Oldest Manufacturer of Pyrethrum Products

MURRAY & NICKELL MFG. CO.

2608-28 ARTHINGTON STREET **CHICAGO**

California's Insecticide Law

By Dr. Alvin J. Cox*

Chief, Division of Chemistry
California Dept. of Agriculture

ONE of the functions of the Division of Chemistry of the California Department of Agriculture is to administer and enforce the California laws dealing with insecticides, bactericides and other economic poisons. This law was passed for the protection of consumers and sponsored by reputable manufacturers who believe that their ultimate success depends upon the delivery of dependable quality products.

The law requires the annual registration of the name, brand, or trademark under which any economic poison is to be sold. Besides the regular certificate of registration there is a restricted one at a lower fee limiting sales to economic poisons intended for *use in households or their immediate environments*, the total retail value of which does not exceed five hundred dollars ($500) per annum. All registrations expire on the 30th of each June. In order to avoid making a collection agency of the division there are penalties for failure promptly to re-register.

A brand name already registered cannot be registered by another firm or individual unless there is a qualifying word that makes adequate distinction. The registration of a material under more than one brand name is permitted. One name cannot be substituted for another, but an extra name can be registered for material of the same composition. When a brand is discontinued it should not be dropped or cancelled before the end of the fiscal year except for special cause. A subsequent change in a name or composition of a registered material must be supplementally registered as a new material. The change of a single letter or figure in a name makes of it a new brand and the alteration or change of composition makes a new material. Supplemental registration must be obtained for a material or brand name not included in the original application.

The California Department of Health and Agriculture may both have jurisdiction over disinfectants, but the former takes jurisdiction when they carry recommendations for the prevention of diseases of either man or other animals. By agreement the Division of Chemistry does not enter the field of disinfectants for hospitals and surgical supplies, medicine chests, and purely medical uses, but includes all products to be used in connection with stables, dairies, creameries, and general agricultural uses, when claims are made that bring them under the economic poisons article of the Agricultural Code.

When any manufacturer has complied with the economic poisons article of the Agricultural Code and has applied for registration of economic poisons, the department must register them. We cannot summarily refuse registration simply because we choose to or merely because we think it desirable. However, Section 1072 of the Agricultural Code provides that, after hearing, the registration of any economic poison which is of little or no value for the purposes for which it is intended may be refused or cancelled. We may require practical demonstration to determine the effectiveness of a material offered for registration. If a product does not furnish commercial control it is our interpretation that it is of little value. In other words, a material must kill pests and at the same time not injure the host. Frequently the margin between control and injury is small. Experimental materials cannot be sold in California at cost or any other price. The policy of the division with regard to economic poisons is definitely that the manufacturers shall do any experimenting and prove the efficacy of their products at their own expense and not at the expense of the user.

The registration of any economic poison concerning which false or misleading statements are made or implied by the registrant or his agent, either verbally or in writing or in the form of advertising literature may be refused or cancelled. The registration of an economic poison dangerous to public health may be refused. Arsenicals to be sprayed in living quarters or onto clothing and thallium compounds are *not* registerable on account of danger to the public health.

The Division of Chemistry is trying to bring about more accuracy and truthfulness in labeling and advertising. The label required by law must say only what a product actually will do and not what one might wish the purchaser to believe. In other words, a label shall carry only proven statements. The division is constantly on the watch for any registrant who may deviate from authorized practice or for non-registrants who may enter the field with misleading and misrepresentative information for expediency or temporary gain.

* Address before 23rd annual meeting, Natl. Assn. Insecticide & Disinfectant Mfrs., Phila., Dec., 1936.

DO THIS now and skip next year's headache.

Send us one gallon of your insecticide, fly spray or other product *unperfumed.* Send it without perfume in it so that we can send back to you a number of samples of it perfumed in the way we think right. When we recommend in that way, we base our suggestion on *real knowledge and experience.* We've helped a lot of pretty good manufacturers sell more goods. Perhaps we can help you too. It doesn't cost much to try, so send along the unperfumed gallon.

van Ameringen-Haebler, Inc.

315 FOURTH AVENUE, NEW YORK

Chicago *Toronto* *Los Angeles* FACTORY, ELIZABETH, N. J.

Manufacturers and Importers of Aromatic Essentials

AROMATIC CHEMICALS—ESSENTIAL OILS—FLAVORS—PERFUME SPECIALTIES—

Heretofore it has *not* been possible to inspect all labels and advertising material of economic poisons before registration. Products were registered and in many cases attention paid only to guarantee and composition. If the analysis of an official sample of economic poison was found not to agree with the label, the registrant was required to re-label in conformity with the analysis, or to change the composition. This fiscal year registrants have been required to submit labels for each product for which registration is requested, and since July 1, 1936, we have studied and criticized approximately 5,000 of these. Because a substance may control certain types of insects, a manufacturer may not herald his product for the control of animal pest life generally. In hundreds of labels the broad statements, generalities, and unprovable claims have been deleted at the suggestion or insistence of the Department. We have met with noteworthy eagerness on the part of the industry to cooperate in this work, because it tends to remove the competition of inferior materials.

One must use on the label the complete registered brand name exactly as given on the application for registration. In so far as possible the entire brand name should be in the same size and style of type. We are trying to avoid regulating the form of labels any more than is necessary to make them comply with the law, but there have been brand names that even an inspector cannot decipher from the label. A distinct brand name is of value to both the manufacturer and the consumer because it simplifies the process of repeat orders. Coined names are acceptable, but if one wishes a descriptive title one cannot use a word that implies any property or characteristic not actually possessed by the product. If one wishes to associate a word such as activated, stabilized, buffered, reinforced, or extra penetrating, wetting or spreading, with an economic poison, these properties must be subject to proof.

The uses for lead arsenate, spray oils, and sulphur are so well known that if there were no other reason, it should not be necessary to enumerate the pests to be controlled. However, regulations must be applied uniformly to all. One manufacturer registered a material for the control of aphis and advertised it to users as a general all-purpose insecticide. When taken to task, in justification of himself, he pointed out that certain articles made no mention of pests at all on their labels. In order to restrict the use of products to their proper function we now require of every applicant for registration that if there is not a statement of the pests to be controlled on the label that such a statement be filed with the application. In an enumeration of pests we must necessarily allow them by groups, but cannot allow "etc.," as we have not yet seen such a pest. This required statement of pests to be controlled has been endorsed by the Pacific Coast Insecticide Association.

Where materials are not sufficiently toxic for the Poison Law administered by the State Board of Pharmacy to require the official poison label, registrants should omit any mention of the toxicity of their products except as related to the insect pest to be controlled. All such statements as "non-poisonous," "non-dangerous," "safe," "harmless to other animals," etc., should be omitted, for anything that will poison insects may possibly be injurious to man. It is the belief of the division that such statements go a little too far in minimizing the danger and tend to make users careless in handling insecticidal materials.

Much of our work is educational and necessitates discussion with the registrants. Certain types of false advertising can be discouraged by showing that it is to the manufacturer's own best interest to avoid them. At times simply to explain the meaning of an active ingredient is difficult. I recall a fungicide in which arsenic trioxide had been incorporated. It was no small task to convince the applicant that even though arsenic trioxide might be an active ingredient in an insecticide it would not be honored as such in a fungicide. When a material is claimed to be an insecticide and at the same time a fungicide there should be two guarantees. In general such materials should be discouraged for it would be a coincidence if the material could serve both purposes at the same time, and otherwise the material for one purpose or the other is wasted. Especially troublesome are those labels of products containing mixed insecticides. One material was offered for registration that had over twenty ingredients. Each constituent may be an active ingredient for the control of some particular pest, but when a hodge podge is made not only of the ingredients, but of the pests to be controlled, our problem is complicated.

The organic and other new or untried insecticides are difficult to label in accordance with the law and we need the patient cooperation of the industry. The law definitely requires on the label the names and percentages of each active ingredient and the total percentage of inert ingredients, or in lieu thereof the names and percentages of each inert ingredient with no mention of the active. Such statements as "vegetable matter," "crude fiber," or "plant fiber" are too indefinite to be proof against abuse. For example, sawdust could be classed under any of these. To be explicit a statement should read "organic matter from derris root" or some such definite term to designate a particular material.

Compounded dusts and insecticides are sold under names which indicate that they are free from lead, arsenic trioxide, or fluorine. The last Legislature passed a requirement that the labels of all economic poisons to be applied to food crops must give the percentage of these substances, and the division has ruled that each of these must be stated if in excess of 0.01 per cent. This was enacted so that the purchaser may know whether or not he

Take your pick—
or
State your preference

PARADOW

FINES GRADED FINES MEDIUM No. 2 MEDIUM No. 1 COARSE ¼" CRYSTALS

(PURE PARADICHLORBENZENE)

DOW

The opportunity to select from six carefully graded sizes, or secure special sizes on order, is the reason PARADOW is given a decided preference among manufacturers of deodorant and moth preventative products.

This extra feature coupled with undeviating quality is typical of the Dow policy to make very effort to serve its customers to the best of its ability.

If you are a user of paradichlorbenzene we invite you to learn more about PARADOW and how it will aid you in securing a better product. Full information, samples, and prices promptly furnished without obligation.

OTHER DOW CHEMICALS

Coumarin—Methyl Salicylate—Methyl Anthranilate—Phenol—Dowicides (Disinfectants, Fungicides)—Caustic Soda—Carbon Tetrachloride—Ethylene Dichloride—Propylene Dichloride—Orthodichlorbenzene and over 200 others.

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

Branch Sales Offices: 30 Rockefeller Plaza, New York City—Second and Madison Streets, St. Louis—135 South La Salle Street, Chicago

will have to deal with a spray residue problem.

Coal tar oil products that are used for shingle stains are not economic poisons. There has been no change in the labeling requirements for creosote for disinfecting purposes, but those used for repelling, destroying or controlling termites or destructive wood fungi in timber have been brought under the provisions of the economic poisons article of the Agricultural Code. The Division of Chemistry has recently evolved standardization requirements for these. Only those substances that meet a standard equal to A. W. P. A. Grade 1 creosote requirements are allowed to be sold as creosote. The lighter and heavier grades may be sold as coal-tar oils. The industry commends our regulation and states that a similar regulation in other sections would help both the industry and the users.

An economic poison is misbranded if it bears any misleading statements, design or device likely to deceive or mislead the purchaser. It is unlawful to sell economic poisons in any other than a registrant's sealed or closed container, unless permitted by Director's proclamation. Last year considerable progress was made in the enforcement of all provisions of the law and the worst offenders obliged to conform to its requirements.

Some examples of our problems may be of interest.

One company tried to take an unfair advantage of the hysterical fear of deleterious spray residue to advertise its products. A product must be sold on its merit and the control to be obtained, and not because it is packed in a tapered bottle that when emptied will serve as a bung for the wine barrel.

A second registrant used the parallel column plan in which he misleadingly showed that the competitive material was crude, cannot be mixed, dangerous, and coarse, whereas his material was safe, can be mixed, toxic and extremely fine. After considerable correspondence and exchange of ideas all admitted that even though they did not cast reflections, comparisons are not the best form of advertising or selling, and that exaggeration cannot be tolerated. All of the circulars in question have been withdrawn and the advertising brought into line with the principles of truthfulness and demonstrated merit.

A label on an organic dust said: "Takes the place of arsenate of lead, calcium arsenate, nicotine, and other poisonous materials to control many sucking and leaf-eating insects on cabbage, celery, cauliflower, broccoli, lettuce, melons, tomatoes, peas and other crops." It is hardly necessary to point out that many insecticides are selective, and not one can be a "cure-all" and necessarily take the place of others.

A registrant applied for a restricted registration of a fly spray but tried to receive the benefits of the regular registration by proposing an evasive label. After the brand name he used the required statement "Licensed for sale and use in households or their immediate environments," but at the bottom of the label he added "Recommended above other sprays for the positive effectiveness of its destroying qualities for flies, in households, dairies, horse and cattle barns, sheds, poultry and pig pens, camps, stores, restaurants, meat markets and in all other places where flies breed or gather."

The Attorney General of the State of California has ruled that products under a restricted registration can be sold only to premises occupied by persons under the management or direction of one person. The label referred to above is obviously not in accord with the ruling of the Attorney General and the product if so sold would have to be registered under the regular fee when the first legend could be omitted. Hotels, restaurants, stores, theaters, commercial dairies, farms, etc., are not households.

Some of you know of the hysteria that has been produced by unrestricted publicity on the black widow spider. Statements on labels that might develop fear generally, have been willingly removed and capitalization of such fear discouraged. The division has discouraged advertisements and publicity not in accord with the facts. The texts of the labels have been carefully scrutinized but until recently no printer's proof was inspected. Without our approval or knowledge one manutacturer increased the size and heaviness of the type of the words "black widow spray" on his label until it stood out more prominently than the brand name. He was forbidden to use such labels. Since that time we have requested registrants to submit printer's proof of all labels so that they will not be put to extra expense if there are corrections.

We have had salesmen of products, no longer registered, who made oral statements that their material put upon the soil around a plant would poison the sap and kill insects feeding on its leaves. One purchaser objected to the small amount (½ per cent) of active ingredients, whereupon the versatile salesmen said, "But look at the inerts, those are what turn the trick," or rather I think he said "i-nerts."

Prosecutions do not necessarily follow every violation of the law. A dozen hearings may be held before one ends in prosecution. About a year ago I called on Judge Alvin Wilson for a complaint against a Japanese law violator. He said he knew the man and suggested that if we would let him warn him, he could be made to keep within the law without criminal action. The judge related an incident of a complaint for shooting robins made by a game warden against a Japanese, whom we will call Sato. Sato was brought before the judge, who said that instead of fining him he was going to give him a job to perform. He handed him a little book in which was written that it is against the law to shoot robins. He instructed Sato to go to every Japanese in the country, explain to him what was written in the book, obtain his signature, and return

(*Turn to Page* 137)

Reilly

COAL TAR PRODUCTS

For the Soap and Disinfectant Industry

15 PLANTS to Serve You

CRESOL
CRESYLIC ACID
CRESOL U. S. P.
XYLENOL
TAR ACID OILS
NAPHTHALENE

•

and

REILLY *Roofing Material*

Reilly roofing and waterproofing materials will protect your plant in the same dependable way Reilly chemicals and oils protect the quality of your product. When you need Roofing Felt, Roofing Pitch or Roofing Tar—Waterproofing Felt, Pitch or Paint—specify Reilly. Prices and particulars on request.

REILLY TAR & CHEMICAL CORPORATION

Executive Offices: Merchants Bank Building
Indianapolis, Indiana

2513 S. DAMEN AVE., CHICAGO, ILL.
500 FIFTH AVE., NEW YORK, N. Y.
ST. LOUIS PARK, MINNEAPOLIS, MINN.

BREUER'S TORNADO ELECTRIC SPRAYERS

get you reorders because they are the most efficient and durable insecticide sprayers ever built. Supply your customers with the best.

The New Tornado Model 36

Automatic Time Switch—Volume Air Control
One Gallon Capacity, 1-3 H.P. G. E. Universal Motor

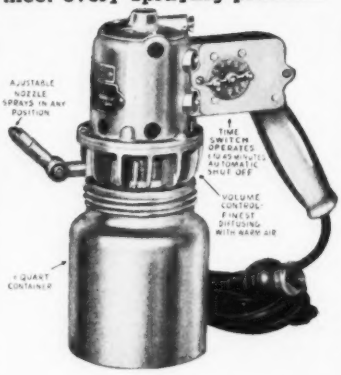
TIME SWITCH OPERATES 1 TO 45 MINUTES AUTOMATIC SHUT OFF
1/3 H.P. G.E. MOTOR
ADJUSTABLE NOZZLE SPRAYS IN ANY POSITION
VOLUME CONTROL FINEST DIFFUSING WITH WARM AIR
COMPRESSOR TYPE
1 GALLON CONTAINER

Here is the finest sprayer ever built. Similar to the now widely used Tornado Model 54 and retaining the automatic time switch, volume air control and adjustable nozzle features, the new Model 36 will spray a big volume of insecticide great distances in finest gas formation.

The patented principle of heating and compressing material does the trick. Just the sprayer you need for covering large distances and penetrating with the finest gas every possible source of insect existence.

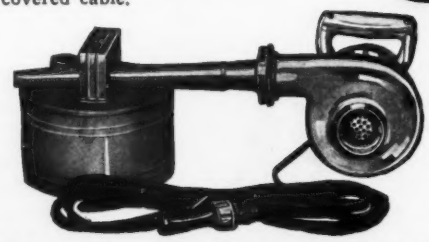
Get the facts on this sprayer before buying!

Also most complete line of electric sprayers to meet every spraying problem.


ADJUSTABLE NOZZLE SPRAYS IN ANY POSITION
TIME SWITCH OPERATES 1 TO 45 MINUTES AUTOMATIC SHUT OFF
VOLUME CONTROL FINEST DIFFUSING WITH WARM AIR
1 QUART CONTAINER

MODEL 54—1 QT. CAPACITY
It features an automatic time switch set at any point from 1 to 30 minutes — sprays desired amount without any attention whatever — automatically shuts off. Can also be used for hand spraying. Adjustable nozzle can be set for spraying in any position. Also exclusive volume control adjustment permits spraying one ounce every two to four minutes with either fine or heavy spray. MODEL 53 same as Model 54 except does not have automatic time switch.

Model 50 Fan Type unit. A fine insecticide atomizer. Sprays distance of 8′ to 10′. ⅛ H.P. G.E. Universal Motor, 1 pint glass jar. 20′ of rubber covered cable.



Model 6 Fan Type unit. Will break insecticide into a very fine mist. Sprays 18′ to 20′. 1/3 H.P. G.E. Universal Motor. Norma Ball Bearings, 1 gallon metal container. This model is for larger institutions, warehouses, industrials, etc., and is also highly recommended for moth-proofing solutions. Write today for complete description and circulars.

BREUER ELECTRIC MFG. CO.
862 Blackhawk Street **Chicago, Ill.**
We do not sell insecticides. Our business is manufacturing sprayers.
Patented in U. S. A. and Foreign Countries

Liquid Insecticide Specification

Specification for household spray, oil type, adopted by National Assn. Insecticide & Disinfectant Manufacturers

By Wallace Thomas*

Gulf Refining Company

HEREWITH is given the report of Wallace Thomas covering a specification for a household spray oil type insecticide as submitted by the Insecticide Standardization and Specifications Committee to the annual meeting of the National Association of Insecticide & Disinfectant Manufacturers in Philadelphia. Upon motion duly made and seconded, it was unanimously voted by the Association that the specifications as presented by Mr. Thomas be adopted as official. *Statement by John H. Wright, secretary.*

Last June this Association adopted a simplified specification for Household Spray Oil Type Insecticide. The first paragraph of this particular specification called for an average kill of not less than 95 per cent of that obtained by the Official Control Insecticide.

Immediately after our June Meeting, Dr. F. L. Campbell consulted with Professor George Snedicor and, with figures available at that time, we concluded that this first paragraph of our specification was inadequate, and I so informed the members of the Board of Governors, of Dr. Weed's Methods of Testing Committee, and of my Committee, immediately by letter.

Based on the work of Dr. Weed's Committee, and conclusions arrived at by his Committee at a meeting held December 6th, also, on his report just read, I suggest that this Association now cancel the specifications previously adopted and replace them with the following specifications:

1. A household spray oil type insecticide shall be harmless to man and warm blooded household animals, when used as directed.

2. When sprayed, as directed, it shall not stain fabrics, wall paper and general household furnishings.

3. When used in the customary manner, it shall not penetrate closed packages of food materials commonly found in homes.

4. It shall not corrode metals.

5. It shall have no objectionable odor, and no particular odor shall be specified.

6. It shall have a flashpoint not less than 125° F. when tested in the Tagliabue closed cup.

7. It is recommended that it be purchased on a direct comparative basis with the Official Control Insecticide of the National Association of Insecticide and Disinfectant Manufacturers, Inc., by using the method of test specified on the bottles of the Official Control Insecticide.

8. The Association hereby adopts the following grades (the plus or minus figures shown therein designating the points over or under the Official Test Control Insecticide when the "Unknown" and the "Control" are tested at the same time in the same manner):

Grades

AA Excellent—plus 21
A Good—plus 11 to plus 20
B Equal to Official Control Insecticide; minus 10 or plus 10
C Poor—minus 11 to minus 20
D Little value minus 21

* Report of Chairman, Insecticide Standardization and Specifications Committee, 23rd annual meeting, Natl. Assn. Insecticide & Disinfectant Mfrs., Philadelphia, Dec. 1936.

Testing Insecticides

By Dr. Alfred Weed*

John Powell & Co.

AT THE meeting of the Committee held on December 6th, our experience with the Control Insecticide methods of reporting results, and the further work of this committee were discussed. Your committee now recommends the following:

(1) Continuance of the Official Test Control Insecticide.

(2) Its preparation in the same manner as the last run.

(3) A change in the label requiring that in referee work the Control Insecticide be run on at least 33 1/3 per cent of the flies used.

(4) That a mimeographed enclosure accompany each bottle of Control Insecticide in which will be given those stipulations which results of tests must meet to be valid.

(5) That the following placement of sprays be accepted by the Association—

Grade AA Excellent—plus 21 above the Control Insecticide.

Grade A Good—plus 11 to plus 20 above the Control Insecticide.

* Report Insecticide Testing Committee before 23rd annual meeting, Natl. Assn. of Insecticide & Disinfectant Mfrs., Philadelphia, Dec. 1936.

1886 – WASHBURN – 1937

TIME TESTED FINISHES.

This new valuable illustrated book explains the treatment, finishing and maintenance of FLOORS

HERE IS HOW

THIS BOOK SENT FREE TO

JOBBERS

WRITE TODAY FOR A COPY

T. F. WASHBURN COMPANY

Floor Maintenance Div.

2244 Elston Ave. Chicago, Ill.

Coaches, Officials, and Players acclaim All American Gym Finish as the perfect gym finish.

HERE IS THE RESULT

$9.75 Patent Applied for

ERTEL GLASS LINED AND STAINLESS STEEL TANKS FOR ECONOMICAL STORAGE AND MIXING

ESPECIALLY suitable for manufacturers of shampoos, shaving creams, liquid soaps and disinfectants. Ideal for coal tar and pine oil products.

Acid resistant. Non-corrosive. Easy to empty. Easy to clean.

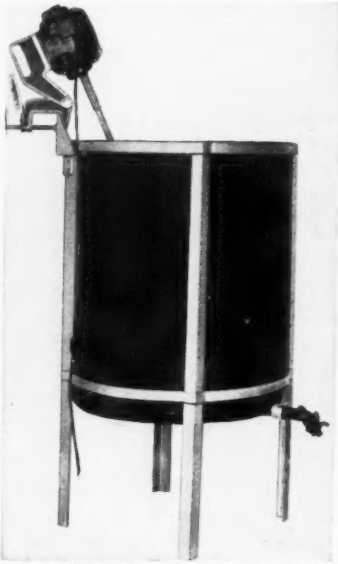
Glass Lined Tanks built in sizes from 15 to 500 gallons. Stainless Steel Tanks built in sizes from 20 to 500 gallons.

HIGH SPEED HAND BOTTLE • CAPPER •

A BOTTLE is capped with every stroke! And the weight of the human arm provides the power. It's positive . . . accurate . . . quick.

No wonder bottlers of shampoos, liquid soaps, polishes and disinfectants are enthusiastic. No electricity to buy. No big investment. No wrist motion to cause operator fatigue.

Chucks to handle caps up to 42 mm. Chucks easily interchangeable. Send cap with order for size.



MANUFACTURERS OF Asbestos Disk Filters, Neutral Asbestos Filter Sheets, Pumps, Portable Mixers, Glass Lined Tanks, Jacketed Tanks, Portable Vacuum Bottle Fillers, Semi-automatic Vacuum Bottle Fillers, Allegheny Stainless Steel Tanks, Capping Equipment.

ERTEL ENGINEERING CORPORATION • Dept. C. 120 E. 16th St. NEW YORK, N. Y.

Grade B Official Control Insecticide plus or minus 10.

Grade C Poor—minus 11 to 20 below Control Insecticide.

Grade D Little Value—minus 21 below Control Insecticide.

Sections one and two represent the consensus of opinion of the committee. The adaption of the Official Test Control Insecticide has long been needed. Sections three, four and five are indicated by the statistical treatment of past results of the committee undertaken by Dr. F. L. Campbell of Ohio State University, formerly cooperating with us as a representative of the Bureau of Entomology and Plant Quarantine. Section five, with our present knowledge, will permit laboratories obtaining different levels of kill to place sprays in their correct grades, irrespective of the actual differences in kill obtained, provided these results conform with the details accompanying each bottle of the Official Test Control Insecticide.

Results on more than 100,000 flies with the Official Control Insecticide were submitted at the meeting of this committee. Where no paper was used on the floor of the chamber the average kill of all laboratories reporting was 64 per cent plus, where paper was used the average kill of laboratories reporting was 43 per cent plus.

Dr. Campbell's report will be revised and a sub-committee will prepare for publication the practical aspects of Dr. Campbell's findings. Another sub-committee will consider points in the test procedure on which there is difference of opinion and a third sub-committee is to consider the value of our present method for the evaluation of extremely high kill insecticides.

We have a number of valuable suggestions from Dr. Campbell for further study but believe additional experience with the Official Test Control Insecticide is needed before these can be undertaken.

All-Purpose Fly Spray?

(*From Page* 109)

foodstuffs. To say the least, it is very discouraging for a housewife to use a fly spray against roaches only to find that after several applications, in some cases using up a can of spray, that the roaches still prevail. Roaches come out in the quiet of the night and an insecticide to be really effective against them, must be one of greater permanence than a fly spray. It must be there when they come out of their hiding places.

Consider the use of a fly spray against moths. In this connection, I might say that here again we have the objectionable feature of the slow-drying qualities of the ordinary spray. I might also say that the impression conveyed to the public by some manufacturers of fly sprays is that their product is a moth-killer as well as a moth-proofer and moth damage preventive. Because the best that can be said for these products is that they may be *temporary moth-proofers*, the manufacturers should state this fact clearly, unless of course a particular product does contain some tested *permanent moth-proofing* ingredient.

To sum up, in my opinion fly sprays are really most effective against flies and mosquitos and the popular tendency to offer them as "cure-all" or "all-purpose" insecticides, and their failure to live up to the claims made for them by their manufacturers, has shaken the faith of the buying public in insecticides, with a possible serious result to responsible manufacturers engaged in the insecticide industry. I believe also that this is the logical time for manufacturers of insecticides to consider the manufacturing of more specific products for specific uses,—products which would not only be highly effective but which would also embody all of the protective elements and most desirable features mentioned herein for each product.

Disinfectants and Antiseptics

(*From Page* 108)

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Antiseptic Coefficient?

(*From Page* 112-g)

which it is claimed to have "germicidal power four times the U. S. government (Phenol Test) requirement." The circular accompanying the package shows the product to have a phenol coefficient of four against *Bacillus typhosus*. This preparation is an oil and cannot even be tested by the phenol coefficient method. It is not soluble in water and would not make a proper solution in the phenol coefficient test as it is described and used. In fact, the directions on the bottle of this preparation specify that it be diluted with mineral oil before use. Such a product can only be tested by a method quite different from the phenol coefficient. A phenol coefficient should not be claimed for such a preparation for reasons given above and also because it cannot be tested by the phenol coefficient method.

Summary

It is apparent that the phenol coefficient test is being misused to the extent that much confusion and misinformation has resulted, and because of this the test itself has been subjected to unjust and unwarranted criticism. It is the object of the present discussion to call attention to these facts. There are definite limitations to the phenol coefficient test which should be recognized by bacteriologists and others interested in germicides. Chemists who are en-

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gaged in making new germicides should not insist on changing this standard test to suit the compounds they make. Those who are interested in antiseptics should become acquainted with the special tests which have been developed for this class of germicides. They should at the same time understand that the phenol coefficient test is not applicable to antiseptics and that the results of such tests, if made, could not be interpreted in any way which would indicate practical germicidal value of such preparations. The phenol coefficient test is used specifically for determining the relative germicidal efficiency of phenol-like disinfectants as compared to pure phenol. The test was developed for this purpose and that is its special use now. When the limitations of the phenol coefficient test are generally recognized and appreciated by all who are interested in this important field, the present confusion will be eliminated.

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Add to Fischbeck Staff

Harry E. Pfaltz, New York essential oil dealer, has recently joined the organization of Chas. Fischbeck Co., New York. Mr. Pfaltz is a son of the late Henry Pfaltz, one of the founders of Pfaltz & Bauer, Inc. Another new member of the Fischbeck staff is C. Lloyd Fischbeck, son of Charles Fischbeck, who recently completed his education at Montclair Academy.

National Association of Insecticide *and* Disinfectant Manufacturers

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MEMBERSHIP

Active Membership

All reputable persons, firms or corporations engaged in or allied with the business of manufacturing or distributing disinfectants, antiseptics, germicides, household insecticides, sanitary supplies, and/or articles coming within the purview of the Federal Insecticide Act of 1910 shall be eligible for Active Membership in the manner prescribed in the By-Laws.

Associate Membership

All reputable persons, firms or corporations engaged in the manufacture or distribution of raw materials, containers, packaging machinery, spraying devices or other articles, or services, normally purchased by Active Members of the Association shall be eligible for Associate Membership, to have and enjoy all the privileges of Active Membership but without the right to vote or hold office.

For further details, communicate with

NATIONAL ASSOCIATION OF INSECTICIDE & DISINFECTANT MANUFACTURERS

John H. Wright, Secretary

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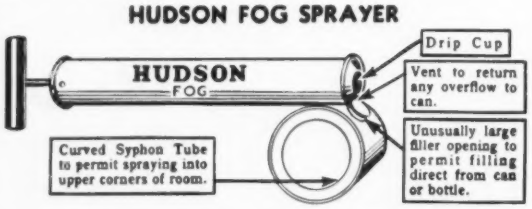
HUDSON

Gimme A Force . . .
A Great Big Force . .
And Let Me Kill These Bugs!

Popguns and toy sprayers are all right to amuse the children. But when it comes to killing insects, Mrs. America wants a real sprayer—not a sneezer! She knows that she has to spray up to the ceiling to get at all the flies in the room—she wants a sprayer that really does the job.

That's the Hudson Fog Sprayer—it's the one we recommend for household use with fly oils. It delivers full pressure with every blast—sends a cloud of death-dealing mist billowing into every corner of the room. It makes your insecticide far more effective—pleases your customers—builds repeat sales. And it's well worth the small difference in price, both to you and your customers. Why not include it in your 1937 sales plans? Look at these features:

HUDSON FOG SPRAYER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FOG
Drip Cup
Vent to return any overflow to can.
Unusually large filler opening to permit filling direct from can or bottle.
Curved Syphon Tube to permit spraying into upper corners of room.

Have you asked for quantity prices on these Hudson Fog Sprayers? This is the time to do it—before 1937's crop of insects are hatched! Write us today.

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NEWS.....

Holcomb Buys Plant

J. I. Holcomb Mfg. Co., Indianapolis, has just purchased a three-story concrete and steel plant containing 62,000 square feet of floor space. The plant was formerly occupied by Leedy Mfg. Co. Holcomb Mfg. Co., manufacturer of cleaning chemicals and brushes, has been located in Indianapolis since 1904.

Tumbler Labs. Expanding

J. A. Tumbler Laboratories, Baltimore, manufacturers of polishes, are adding potash soaps and various sanitary and chemical specialties to their line. It is understood that these new products, along with those which they have been making for some time, will be sold in bulk and under private brand to the janitor supply trade.

"Oxol" Contest

J. L. Prescott Co., Passaic, is sponsoring a newspaper contest for a slogan for its "Oxol" cleanser. A prize of $200 heads the list of 53 cash prizes being offered.

Restrain Enoz Advertising

Enoz Chemical Co., Chicago, has signed a stipulation with the U. S. Federal Trade Commission agreeing to stop advertising "Enoz Moth Spray" as the undisputed leader in its field, as the most economical and effective method of moth control ever known, and that this article re-lusters upholstered furniture, carpets or rugs, or brings out the original color.

New Polish Firm

Stone & Weaver, Leaksville, N. C., has recently been organized to manufacture a specialty cleaner and act as manufacturers' agent for other cleaners and polishes in the southeastern part of the U. S. The company will be glad to contact manufacturers who may be interested in making distributor connections in this part of the country. Buford R. Stone, of Buford R. Stone Co., one of the organizers of the new concern, has been active in manufacture and sales promotion in the shoe polish and cleaner field for the past 15 years.

Curlett McCormick Vice-Pres.

John N. Curlett was elected vice-president of McCormick & Co., Baltimore, at the recent annual meeting of the board of directors. Mr. Curlett is a member of the McCormick & Co. board, and also serves on the board of directors of McCormick Sales Co. He has been active in the affairs of the National Association of Insecticide and Disinfectant Manufacturers for several years and is well known through the insecticide trade. Mr. Curlett is one of the younger executives of McCormick & Co. whose progress over the past few years has been exceptionally rapid.

Addresses Pharmacy Students

Dr. George F. Reddish, chief bacteriologist of Lambert Pharmacal Co., St. Louis, and Professor of Bacteriology at the St. Louis College of Pharmacy, recently addressed the students of the School of Pharmacy of the University of Kansas on "Interpretation of Bacteriological Tests on Disinfectants and Antiseptics." On the same day, he also spoke before several classes at the Kansas City College of Pharmacy on the same subject.

Watkins Builds in Canada

J. R. Watkins Co., Ltd., Winnipeg, Manitoba, Canada, is building a $12,000 addition to its Canadian plant for the manufacture of disinfectants and medicines.

Murnick Sales Agents

Philip A. Houghton, Inc., Boston, has been named New England agent for Murray & Nickell Mfg. Co., Chicago, manufacturers of insecticidal raw materials including pyrethrum powder, concentrate, red squill, roach powder, mothproofing preparations, etc.

Fuld Bros. Now Partnership

Melvin Fuld and Joseph Fuld, the two principals in Fuld Bros., Inc., Baltimore, sanitary specialties, have purchased all the assets and liabilities of the corporation, and will carry on the business without other change in policy or method of operation. The change from a corporate status was made in view of the greatly increased taxes on corporations levied by recent legislation.

Levy Fine on Cresol Product

Hi-Test Laboratories, Inc., Cleveland, has been fined $50 under the U. S. Food & Drugs Act for interstate shipment of a quantity of "Maison's Cresol Solution" which was misbranded. Statements on the label stated the product to be an antiseptic and disinfectant, whereas it was not effective when used as directed.

Heads New Pest Control Assn.

Joseph Hill of Knox-Ant Corp., Memphis, was elected president of the Memphis Pest Control Association at the recent organization meeting. Arthur Murray was named vice-president and Louis Kot-

With the very definite return of prosperity comes your big opportunity to change over to deodorized base.

We suggest you select

NONODR

The completely deodorized base for liquid insecticides.

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BRADFORD PENN REFINING CORP.
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NEW IMPROVED
ROACH POWDER

SMALL PACKAGES WITH PRIVATE BRAND AND LABEL SERVICE
HIGHLY EFFECTIVE—GREATER CUSTOMER SATISFACTION
SURE REPEATS—A REAL BUSINESS BUILDER

DON'T FAIL TO SEND FOR SAMPLE AND OUR LOW PRICES

ONE OF THE NEW SERVICES TO HELP JOBBERS INCREASE SALES. FOR PROFIT—FOLLOW CHEMICAL SUPPLY DURING 1937

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ler, secretary-treasurer. A committee on the formulation of constitution and by-laws has been named, consisting of Herman Carle and C. A. Wylie. Monthly meetings are planned.

◆

Hatman Mgr. Coopers Creek

J. A. Hatman is the new general manager of Coopers Creek Chemical Co., West Conshohocken, Pa., manufacturers of coal tar raw materials and coal tar disinfectants. He succeeds A. M. Simpson. Mr. Hatman's experience in the coal tar business extends back to 1921 when he joined the Barrett Co. For the past few years he has been managing their Frankfort, Pa., chemical plant.

◆

Enter Janitor Supply Field

A. C. Exterminating Service Co., Cleveland, heretofore exclusively in the field of fumigating, exterminating, and mothproofing, have established a janitor supply department in connection with the business to handle a complete line of these products. The company has dispensed with its fumigation department although it will continue its general exterminating and building service work. The new janitor supply department is in charge of A. G. Slessinger. L. A. McKenna is president of the company. Doris McKenna is secretary-treasurer. The offices are located at Chester and 17th St., Cleveland.

◆

Flour City Brush Moves

Due to a greatly increased volume of business, Flour City Brush Co., Minneapolis manufacturer of a complete line of brushes for the jobbing trade, has recently moved into larger quarters at 301-05 Fifth Avenue.

◆

Schedule "Drano" Advertising

Drackett Products Co., Cincinnati, is scheduling the largest campaign in "Drano" history for 1937. Magazines and radio will be used, with the account being handled by Ralph H. Jones Co., of Cincinnati.

Pest Control Conference

The Department of Entomology of Purdue University, Lafayette, Ind., will hold a conference for pest control operators, January 18-22. This conference is provided at the request of Indiana pest control operators and in cooperation with the National Association of Exterminators and Fumigators. The purpose of this initial conference or short course is to provide information dealing with the fundamentals of insect life and insect control which are the basis of all pest control operations.

Speakers have not as yet been indicated in the preliminary program. They will include technical authorities, as well as commercial operators and representatives of commercial manufacturers. There will be a registration fee of $1.00 to cover cost of mimeographing outlines, etc. Any individual planning to attend should communicate in advance with Prof. J. J. Davis, Purdue University, Lafayette, Ind., who is in charge of arrangements for the conference. The program is scheduled as follows:

JANUARY 18-22, 1937

Monday—9:00-12 A.M. January 18, Room 102, Agricultural Building—Registration.

Monday—1:30-4:30 P.M. January 18, Room 103, Agricultural Building—Economic importance of Insects and Other Pests. (A general and popular discussion to arouse an appreciation of the extent of insect problems).

Insect Structures and How They Relate to Control.

The Life History and Habits of Insect Pests and their Relation to an Understanding and Application of Insect Controls.

Tuesday—9:00-12:00 A.M. January 19, Room 103, Agricultural Building—A glimpse of the History of Insect Control.

The Principles of Insect Control.

Sources of Information.

Tuesday—1:30-4:30 P.M. January 19, Room 103, Agricultural Building—Insecticides and Their Uses, with Special Reference to Insecticides Used by the Pest Control Operator and Fumigator.

Wednesday—9:00-12:00 A.M. January 20, Room 201, Agricultural Building—The Identification of Insects.

Wednesday—1:30-4:30 P.M. January 20, Room 103, Agricultural Building—Further Studies on Insects Infesting Buildings, Including Their Life Histories and Activities.

How to Rear and Maintain Cages of Living Household Insects for Window and Other Displays.

Thursday—9:00-12:00 A.M. January 21, Room 103, Agricultural Building—Clinic on Rats and Mice.

Thursday—1:30-4:30 P.M. January 21, Room 103, Agricultural Building—Clinic on Termites.

Thursday—6:30 P.M. January 21, Memorial Union Building—Informal Banquet (Cost to be announced).

Friday—9:00-12:00 A.M. January 22, Room 103, Agricultural Building—Clinic on Cockroaches and Ants.

Friday—1:30-4:30 P.M. January 22, Room 103, Agricultural Building—Optional Session for Specific Problems.

◆

Insecticide Agency Desired

A company in Caracas, Venezuela, wishes to obtain the exclusive agency for insecticides and chemical products such as sodium bicarbonate. Interested parties should communicate with the U. S. Bureau of Foreign and Domestic Commerce, Washington, D. C., referring to Inquiry No. 2114.

◆

Fritzsche Office Party

Fritzsche Bros., Inc., New York, gave their annual dinner dance for employees of the company, December 19, in the grand ballroom of the Hotel New Yorker. F. H. Leonhardt, Fritzsche president, welcomed the guests who included the manager of the Seillans plant, Pierre Chauvet, and his wife.

Atlantic Ultrasene

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IT WOULD be perfectly possible to kill a fly with ointment. Once mired, he would die . . . just as he dies on fly-paper. But think what would happen if every time we wanted to get rid of an insect we had to mire it. The result would be an indescribable mess.

Now there's *no fly in the ointment* when we say that an Atlantic Ultrasene-base insecticide leaves no undesirable residue. Ultrasene is highly refined for one purpose — as a carrier for insect killers. It is uniform, evaporates rapidly, leaves no thin film of oil, no unpleasant odor. That's why successful insecticide manufacturers are choosing Ultrasene for their spray-base. That's why hotel and restaurant proprietors—proprietors of all kinds of places where food is stored or prepared — are demanding Ultrasene-base insecticides.

It will pay you to know more about Atlantic Ultrasene. Write immediately for further information and liberal experimental samples. Our technical department is anxious to help you. The Atlantic Refining Company, Specialty Sales Department, 260 South Broad Street, Philadelphia, Pennsylvania.

ATLANTIC ULTRASENE

Baird's

99-100% CRESYLIC ACID

is different from the ordinary run of Cresylic Acid in that—

It is almost water-white in color and will so remain for a long time. Samples in test-tubes exposed to direct sunlight for three weeks showed no perceptible change in color.

It is entirely free from gassy odor. It has a characteristic odor of cresol and products made from it are not rendered "smelly" or objectionable.

98-99% CRESYLIC ACID

It is higher boiling than many cresylic acids now offered; hence it is better suited for use as a preservative and anti-fermentive in compounds which tend to turn rancid or sour.

It is uniform throughout, perfectly transparent and without a trace of cloudiness. Produced exclusively for us according to our own specifications in England, you are assured at all times of an acid of fixed standard and quality.

Your inquiries and orders are solicited. Samples will be gladly sent for testing, and quotations submitted on any quantity you can use, either for shipment from Holbrook, St. Louis or direct importation.

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Fine Insecticide Act Violators

The failure of manufacturers to place on the labels of thier products the ingredient statement required by the Federal Insecticide Act formed the basis of the majority of prosecutions recently terminated under that statute by the U. S. Food and Drug Administration.

Laboratory Products Co., Chicago, was fined $25 for shipping in interstate commerce a misbranded disinfectant called "Klen-Zit." The product contained more than 94 per cent of water and other inert ingredients, and the labeling bore no ingredient statement. Marshall Products, Inc., St. Louis, was fined $50 for shipping in interstate commerce a misbranded "Oil Emulsion." The product contained more than 61 per cent of water, and no ingredient statement appeared on the label.

A criminal prosecution against Samuel Kovacs and Joseph Weishaus, trading as Royal Manufacturing Co., Chicago, resulted in a fine of $50. Three products were involved in this case—"Wayco Mosquito Lotion," "Bugine Roach Powder," and "Monogram Insect Powder." The term "Insect Powder" is misleading, the commission ruled, when applied to "Monogram Insect Powder," since this preparation contained borax and other inert substances in addition to pyrethrum powder.

The product was also in violation of the act that no ingredient statement appeared on the label. The roach powder was adulterated and misbranded, containing less sodium fluoride and sodium bifluoride and more inert ingredients than claimed. The mosquito lotion also contained inert substances, and the label failed to give the required ingredient statement.

Two moth preparations, "Aroma Moth Vaporizer" and "Termox Mothproofing Crystals" were the subject of a criminal prosecution against Ben Berg and Sol Nathan, trading as Berg and Nathan Sales Co., Chicago. The "Aroma Moth Vaporizer" consisted of less than 2 per cent of paradichlorobenzene and more than 98 per cent of common salt, the latter inert ingredient not being stated on the label. It was recommended for the control of moths, although found to be ineffective for such use. The "Termox Mothproofing Crystals" contained about 60 per cent of common salt, and no ingredient statement appeared upon the label. A plea of guilty was entered and a fine of $25 imposed.

R. M. Hollingshead Corp., Camden, N. J., pleaded guilty to a charge of violation of the Federal Caustic Poison Act in the labeling of "Little Wonder Drain Pipe Solvent." The case was brought in the U. S. District Court at Camden, and a fine of $150 was imposed. The action involved two shipments of the product bearing the same labeling. The second shipment was made several months after the corporation had been warned by citation and hearing in regard to the violation of the law in the labeling of the first shipment.

Ryan Resigns Bruce Post

W. B. Ryan who was elected president of Bruce Terminix Co., Atlanta, last March, recently resigned his position as traffic manager of E. L. Bruce Co., Memphis, to devote his entire time to the Terminix Company. Mr. Ryan has been traffic manager of E. L. Bruce Co. since July 1, 1926. Bruce Terminix Co., organized in 1928, is licensee of E. L. Bruce Co., which concern markets a termite exterminator under trade name of "Terminix."

Sunbeam Specialty Bankrupt

A meeting of the creditors of Sunbeam Specialty Co. was scheduled to be held in Cleveland Jan. 4. Applications were received for $1,250, covering fees for bankruptcy proceedings, referee, trustee, etc. A report showed assets to be only $1,331.

Berlou in New Quarters

Berlou Mfg. Co., maker of moth-proofing chemicals, has moved to Marion, Ohio, from Minneapolis.

Stearns Issues Booklet

A booklet featuring an outline of the advertising used on "Stearns' Electric Paste," for exterminating vermin and insects, is being distributed by Stearns' Electric Paste Co., Chicago.

Hugh McCormick Dies

Hugh McCormick, vice-president of McCormick & Co., Baltimore, died December 1, after an illness of two months. His death was caused by a kidney ailment. He was a brother of C. P. McCormick, president of the company, and nephew of the late Willoughby M. McCormick.

Calif. Economic Poison Act

A bulletin clarifying certain portions of the California Economic Poisons Act has just been mailed by the National Association of Insecticide and Disinfectant Manufacturers.

Horticultural Spray Materials

Michel Export Co., New York, advises that two patented products, "Superin DN" and "Superfix DF," are finding use in Europe as ingredients of horticultural sprays. Sprays reinforced with these products do not settle in drops and are not washed off easily by rain. Use of "Superin DN" gives better dispersion properties, it is stated, while with the use of "Superfix DF" the penetration properties of sprays are improved so that they will penetrate small crevices.

Monsanto Players Offer Revue

Members of the staff of Monsanto Chemical Co., St. Louis, presented the "Monsanto Musical Review" the evening of December 16 in the Opera House of the St. Louis Municipal Auditorium. Proceeds from the performance went to Monsanto's Christmas basket fund for the distribution of baskets to the needy in the vicinity of the three Monsanto plants in the St. Louis area. Paul N. Biven, analytical chemist at the St. Louis plant, acted as producer and director of the performance.

IT'S RED

"KLEENSWEEP"

THE PATENTED
SWEEPING COMPOUND
WITH THE SISAL BASE

IT'S GREEN

"SANISWEEP"

THE SWEEPING
COMPOUND WITH
THE SAWDUST BASE

Our preparations will help you increase
your sales on SWEEPING COMPOUND.

SWEEPING COMPOUND M'N'F'R'S CO. OF N. Y. INC.

421 BROOME STREET
NEW YORK CITY

Manufacturers for the Trade Exclusively

Wears Longer

REWAXINGS become much less frequent when Rubber Gloss is used, for its tough, rubber-like, wear-resisting film stands heavy traffic and repeated damp mopping long after ordinary wax coatings have disappeared. Rubber Gloss provides a perfectly balanced wax film that is neither too hard nor too soft; hence it will not "powder off," neither will it gather dirt.

Phone our local distributor or write direct regarding free test on your own floors.

FRANKLIN RESEARCH CO., Philadelphia, Pa.

Distributors in All Principal Cities

All our containers are tamper-proof and guaranteed only when seals are unbroken

EXCLUSIVE TERRITORIES
ARE STILL AVAILABLE

Distributors will find Franklin floor-maintenance products an exceptionally profitable line to handle. Every item is of superior quality and rightly priced. Franklin distributors are well supported by national advertising, ample selling helps and the close co-operation of our sales department. A special representative will call and explain in detail. Write or wire.

FRANKLIN RESEARCH CO.
Philadelphia, Pa.
W. J. LaRoche, Sales Manager

INDUSTRIAL COATINGS

Through the Wilbur White Division of Franklin Research Company there are available many highly technical emulsions that adapt themselves to the factory coating of rubber, leather, paper, nursery stock, citrous fruits, etc. . . . Special sales information on request.

Government Chemists Confer

Chief chemists of the Customs Division of the Treasury Department recently concluded a week of conferences aimed at reducing the importation of substandard soaps and insecticides, according to John F. Williams, administrative head. The conferences, concluded at the government's New York laboratory following meetings in Washington and Philadelphia, were for the purpose of establishing uniform methods of determining the identity, character, quality, purity, and the history of the imported soaps and allied products based upon chemical or physical examinations.

The conferences achieved its desired result, namely, providing a free exchange of opinion between the government's chief chemists, coordination of their activities, and provision for more adequate protection to United States soap and insecticide producers and the public.

The Customs Service of the Treasury maintains ten field laboratories throughout the United States, the largest of which is located in New York City. In these laboratories 51 chemists annually examine approximately one hundred thousand soap and other merchandise entries. In order that uniformity in the application of the Tariff Act shall be obtained at all ports of entry it is basically essential that these laboratories maintain effective channels through which information may be exchanged, according to Mr. Williams. To this end, the Division of Laboratories, with headquarters in Washington was set up March 28, 1936, whose functions it is to coordinate the activities of these technical men and to assure that each laboratory be maintained at a high state of scientific effectiveness, and that the experience of each in turn be made available to the rest.

In the course of the conferences in Washington, the Chief Chemists of the Customs Division visited the headquarters laboratory of the Bureau of Internal Revenue, a sister division in the Treasury Department, the National Bureau of Standards, and the laboratories of the Department of Agriculture. When Washington conferences were concluded the delegates visited the Philadelphia laboratory. This is the most recently renovated laboratory in the Customs Service and illustrates the furthest advances in laboratory arrangement in the Bureau. They then visited the New York laboratory which is the largest of the chain and where the greatest variety of items are tested.

H. W. Cole on Leave

Harry W. Cole, secretary of Baird & McGuire, Inc., Holbrook, Mass., formerly member of the board

H. W. Cole

of the National Association of Insecticide & Disinfectant Manufacturers, and for many years its secretary, has taken a one-year leave of absence from his duties with Baird & McGuire owing to ill health. Mr. Cole left about the middle of December for the south. His last reported address was Terminal Hotel, Augusta, Ga.

At the recent 23rd annual meeting of the National Association of Insecticide & Disinfectant Manufacturers in Philadelphia, Mr. Cole was the recipient of an unusual honmember of the Association which he or, that of being elected an honorary had served for twenty years.

Ahles in N. Y.

Harry J. Ahles, mid-west sales representative for John Powell & Co., New York, Stillwell & Co., New York, and other eastern firms, spent the past two weeks in New York conferring with his principals. He returned to his Chicago headquarters on Jan. 10. Mr. Ahles was accompanied by David Lynch, sales representative for John Powell & Co. who is connected with the Ahles organization in Chicago.

Prof. Exterminators Meet

The first 1937 meeting of the Professional Exterminators Association was held January 7 at 2 Park Ave., New York. Following dinner a series of talks on rodent control were delivered by the following speakers: B. E. Holsendorf, United States Public Health Service—"Health Hazards"; E. M. Mills, United States Department of Agriculture Biological Survey, "Squill"; C. H. W. Hasselriis, of Ratin Laboratory, New York, "Bacteriologicals"; and Charles Opitz, of John Opitz, Inc., L. I. City, "Phosphorous." This was the first of a series of similar lectures arranged as a part of the 1937 program of activities.

Crown Gets Williams

Crown Cork and Seal Co., Baltimore, acquired a controlling interest in Williams Sealing Corp., Decatur, Ill., last July, it was announced recently. The management of the former Williams firm will not be changed, the company remaining a subsidiary of Crown Cork and Seal.

R. H. Watkins to Marry

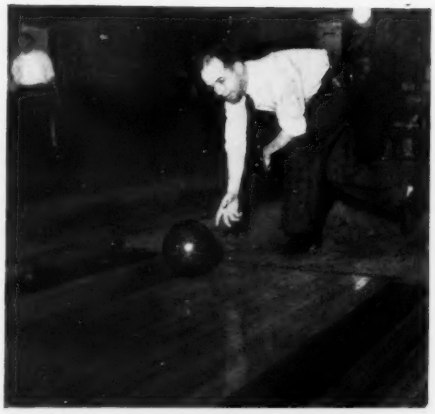
The engagement has been announced of R. H. Watkins, purchasing agent for J. R. Watkins Co., cosmetics and specialties, Winona, Minn., to Miss Eva E. MacLean, who has charge of the physical therapy department of the Winona General Hospital.

Magnus Heads Trade Board

Percy C. Magnus, president of Magnus, Mabee & Reynard, Inc., New York, was again named president of the New York Board of Trade for his fifth consecutive term at a meeting of the directors December 28.

Wherever Floor Waxes or Polishes are needed . . . Windsor does the job . . .

Since 1923 WINDSOR has specialized in the manufacture of uniform quality floor waxes exclusively.



The Windsor line includes

No Rubbing Liquid Wax
Powdered Dance Wax
Furniture Polish
Paste Wax
Liquid Wax
Auto Wax
Bowling Alley Wax
and
Wax compounds to your specifications.
In bulk or packaged under private label.

WINDSOR WAX CO., INC.
53 Park Place N. Y. C.

It's the "CARNAUBA" in WINDSOR that satisfies your customers.

KOPPERS

KOPPERS is one of the important sources of chemical raw materials such as Tar Acids, Cresol, Phenols, Cresylic Acid, Tar Acid Oils and Neutral Carbon Oil. But it is much more than that. It designs and builds plants in which many of these materials are produced and refined. It makes roofing and waterproofing materials for the protection of industrial plants, and Tarmac road materials for the paving of plant roads. It mines bituminous coal for fuel and for processing. It produces coke. Koppers is the only manufacturer of Fast's self-aligning Couplings, invaluable in power shaft connections. It builds tanks and does plate work; manufactures gas and water valves and fire hydrants. It produces piston rings of every size for every type of gasoline, Diesel and steam engines, and builds and reconditions lighters, tankers and ocean vessels. It produces creosote and applies preservative treatments to lumber, piling, posts, etc.

KOPPERS COMPANY
PITTSBURGH, PA.

Tar Acids
Cresol, U.S.P.
Phenols
Cresylic Acid
98% to 100%
Straw Color
Tar Acid Oils
Neutral
Hydrocarbon Oil

Other Koppers Products
Benzol (all grades)
Toluol (Industrial and Nitration)
Xylol (10° and Industrial)
Solvent Naphtha
(including High Flash)
Phenol (82% and 90% Purity)
Naphthalene
Shingle Stain Oil
Refined Tars
Pitch Coke
Industrial Coal Tar Pitches
Flotation Oils
Creosote
Tanks and Tank Work
Benzol Recovery Plants
Naphthalene Removal Apparatus
Phenol Removal Apparatus
By-Product Gas Plants
By-Product Recovery Apparatus
Sulphur Recovery Apparatus
Coal Tar Roofing Materials
Waterproofing and
Dampproofing Materials
Tarmac Road Tar Materials
Bituminous Base Paints
Coal
Coke
Fast's Self-Aligning Couplings
Fire Hydrants
Piston Rings
Gas and Water Valves
Treated Lumber
Special Machinery

KOPPERS DIVISIONS—American Hammered Piston Ring Division . . . Bartlett Hayward Division . . . Engineering and Construction Division . . . Gas and Coke Division . . . Tar and Chemical Division . . . Western Gas Division • KOPPERS SUBSIDIARIES AND AFFILIATES—Eastern Gas and Fuel Associates . . . Hiler Engineering and Construction Company, Inc. . . . The Koppers Coal Company . . . Koppers-Rheolaveur Company . . . The Maryland Drydock Company . . . The White Tar Company of New Jersey, Inc. . . . The Wood Preserving Corporation.

McCormick Sales Meeting

Sales representatives of McCormick & Co., participated in a four-day sales conference at the home offices in Baltimore, beginning December 28. J. N. Curlett, McCormick vice-president, was general chairman. Talks were given by Charles P. McCormick, president, and other company officials.

Toxicity of Pyrethrins

Multiple extraction using petroleum ether and aqueous acetic acid effected a partial separation of pyrethrins I and II, giving extracts in which the ratio of I to II varied from 4 to 0.047 (Seil method). Comparative toxicity experiments with *Aphis rumicis* with acetone as the solvent showed that pyrethrin I extracts were considerably more toxic than pyrethrin II extracts, both of high initial concentration. With Penetrol, a miscible oil, as the solvent, there is not much difference in toxicity.

The difference in toxicity of I and II as tested on house flies by the Peet-Grady and the modified Nelson methods, is not statistically significant. The results indicate that the method of application and the physical condition of the pyrethrins I and II are determining factors in considering the relative toxicities toward the organisms studied. Albert Hartzell and Frank Wilcoxon. Contrib. Boyce Thompson Inst. 8, 183-8 (1936).

General Dyestuff Moves

General Dyestuff Corp., New York, has recently moved all its departments into a newly-erected nine-story building at 435 Hudson Street, which it occupies together with General Aniline Works, for which it is sole selling agent.

N'western Exterminators Elect

At the recent annual meeting of the Northwestern Association of Exterminators and Fumigators, held at Cafe Exceptionale, St. Paul, officers for the ensuing year were elected as follows: Max J. Levy, president; Wm. O'Reilly, vice-president; E. H. Leitte, treasurer; H. V. Smith, secretary; R. Vannes, director; and F. L. Casey, director. Unfair trade practices were discussed and a committee was appointed to make a study of this matter and report at the next meeting. Members included Messrs. Leitte, Vannes, and O'Reilly.

Automobile Body Polish

The following formula is typical and can be made the basis for further experiments:

	Pounds
Beeswax	2
Carnauba wax	4
Ceresin wax	2
Stearic acid	5
Naphtha	40
Triethanolamine	1½
Water, soft	40
Abrasive	12 to 30

Mix the stearic acid and triethanolamine into the water and heat to 100° C., stirring until a smooth soap solution is obtained. Melt the waxes in the naphtha and when the soap solution has cooled to about 80° C. stir in the waxes, agitating with a rapid stirrer until a smooth creamy emulsion is obtained. An oil-absorbing abrasive, such as tripoli, should first be mixed with the hot naphtha and waxes before adding to the soap solution. Up to 30 lbs. of tripoli can be added to a mix of the above proportions. The quantity of the abrasive will depend on the hardness of the films on which the polish is to be used and is a matter of experiment. The consistency can be altered by varying the proportions of naphtha and water. *Manufacturing Chemist* **7**, 387.

Destroy "Lubrol" Shipment

A shipment of "Lubrol" by Atlas Laboratories from Akron, Ohio, to Birmingham, Ala., has recently been confiscated and destroyed by the U. S. Food & Drug Administration. This article failed to conform to the standard under which it was sold, unwarranted curative and therapeutic claims were made for it, and its label bore erroneous statements as to its potency as a germicide.

Johnson Wins Suit

The suit of S. C. Johnson & Sons, Inc., Racine, Wis., against R. F. Johnston Paint Co., Cincinnati, involving trade mark rights in the names "Johnson's" and "Johnston's" was ended December 15. A consent decree was issued restraining the defendants from using the marks "Johnston's" on products other than paints and enamels.

Want Disinfectant Agency

A firm in Bridgetown, Barbados, is interested in acquiring an agency for disinfectants, shoe cleaners, dyes, pitch, and turpentine. Interested concerns may communicate through the U. S. Bureau of Foreign and Domestic Commerce, mentioning Inquiry No. 2127.

Ertel on European Trip

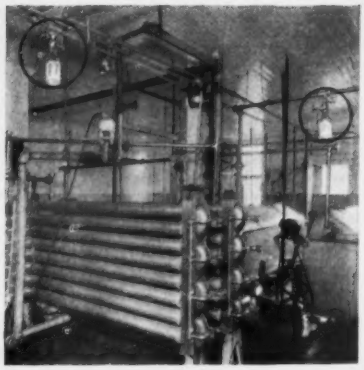
Fred J. K. Ertel, head of Ertel Engineering Corp., New York, left December 19th for a two to three months' business and pleasure trip in Europe. He expects to spend considerable time in London with his London representative, Farrow and Jackson, and if time permits will take in the Leipzig Fair in Germany. Mr. Ertel's family is accompanying him.

Packaging Show March 23

The seventh annual Packaging Exposition will be held at the Hotel Pennsylvania, New York, March 23 to March 26. All display space is already sold out three months in advance of the opening, and the 1937 show will be twenty-five per cent larger than last year's show.

Schoenderg at Home Office

B. J. Schoenderg, manager of the eastern division of U. S. Sanitary Specialties Corp., visited the general offices of the company in Chicago the last week of December to go over new sales plans for 1937 with George L. Simmonds, president of the company.



STATIONARY INSTALLATION

"FUMERAL" INSTANT DIFFUSER

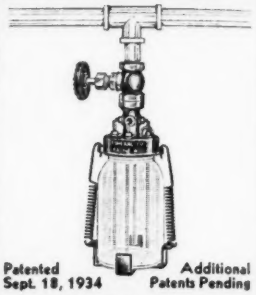
For the instant diffusion and powerful circulation of various brands of fly sprays, insecticides, deodorants and fumigants.

Safe, modern sanitation, insect, vermin and rodent control for dairies, ice cream and cheese factories, bakeries, confectionaries, flour, cereal and food mills, packing plants, sausage factories, refrigerators, office buildings, store rooms, ocean liners, paper mills and thousands of various industries, can now be accomplished.

At the left shows how Fumeral instant diffusers are permanently installed. There are no moving parts, nothing to get out of order, no electricity to fuss with. Pressures from 30 to 200 pounds may be used. No adjustments are required. Each Fumeral unit will take care of 10,000 cubic feet of space. Fumeral does a thorough job—it is inexpensive—efficient and most economical. Thousands in service from coast to coast.

FUMERAL COMPANY
RACINE, WIS.
Manufacturers of Fumeral Stationary and Portable Diffusers

FUMERAL PRESSURE SYSTEM CONNECTS TO STEAM OR AIR PRESSURE LINE



Patented Sept. 18, 1934 — Additional Patents Pending

ANYONE CAN INSTALL IT

The FINDLAY CARTON HANDLING SYSTEM SAVES

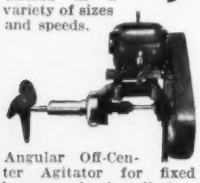
Handling Costs as much as 65%

Warehouse Space,
Time on Carton Moving Operations
and
Reduces Insurance Rates
Write for complete information on
The Findlay Carton Handling System
"It Pays For Itself"

SELF-LIFTING PIANO TRUCK CO., FINDLAY, OHIO

"LIGHTNIN" MIXERS FOR

Portable Geared Drive Mixer. Models also available in direct drive for lighter fluids. Both models offered in a variety of sizes and speeds.

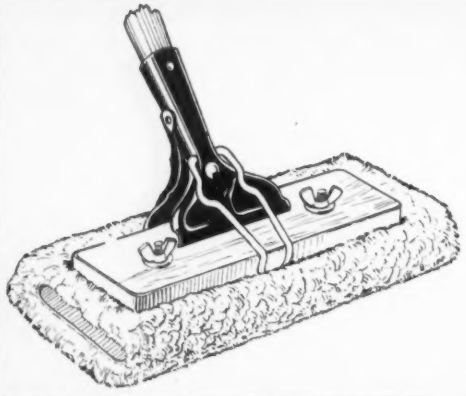


Angular Off-Center Agitator for fixed large tank installation. Sizes from 2 to 50 H.P. and larger.

1. Blending perfume oils.
2. Converting soap base into shampoo and liquid soap.
3. Manufacture of liquid household insecticides (blending pyrethrum extracts, perfume oils and petroleum distillate).
4. Manufacture of stable disinfectant emulsions.
5. Mixing liquid polishes of all kinds.
6. Manufacturing liquid cleaning preparations.

"Lightnin" Double Mixing action completely eliminates dead spots—Write for new Catalog just off the press.

MIXING EQUIPMENT COMPANY, INC.
1050 Garson Avenue — **Rochester, N. Y.**
Representatives in all principal cities
New York Office—368 Broadway



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of convenient and proper application of floor waxes, seals and varnishes. You can be sure that your products are being used correctly by selling or recommending the HOLZ-EM WAX APPLICATOR and SPREADER to do the job. Designed by experts, made of the best materials, the HOLZ-EM will help build your list of satisfied customers just as it has done for others who are already familiar with the product.

We manufacture a complete line of applicators and mops. For prices and sample write

AMERICAN STANDARD MFG. CO.
2509-13 South Green St. (formerly Lime St.) — **Chicago, Ill.**

Federal Varnish Co. Builds

Construction work has recently been started on an addition to the Fullerton Avenue plant of Federal Varnish Co., Chicago. The new building will house a larger and more modern laboratory and an up-to-date finishing room. Also a portion of the building will be used for storage purposes. The new unit which is to be one story, 50 x 125 is expected to be ready for occupancy by Feb. 1st.

Knox-Ant Corp. Moves

Knox-Ant Corporation recently moved from 1146 Madison Avenue, Memphis, to 3107 Poplar Avenue. The firm's new home is an especially designed California type bungalow structure with elaborate built in displays of termite educational exhibits. "While the treatment of new structures against termites is not receiving the attention it should in the Memphis territory," according to W. B. Hill, president of the corporation, "the builders and property owners are becoming more and more termite conscious and there is a steadily growing appreciation of the extensive damage termites cause to structures yearly."

Brush Industry Schedule Revise

The final proposal of the simplification and standardization committee of the American Brush Manufacturers' Association is now before the industry for consideration and signed acceptance. This proposal is based on a revision approved in May, 1935, of Simplified Practice Recommendation R88-29 for Floor Sweeps to the Division of Simplified Practice of the National Bureau of Standards, Washington, D. C., approved originally in March, 1928. When approved by all interests the revised schedule will be announced. It will be subject to regular review by the standing committee of the industry.

Insecticide Registration

(*From Page* 95)

Aromatic Products Co...M. Lemmeyer
C. L. Weston
Atlantic Refining Co..H. R. Ballantine
J. M. Hoerner
F. I. L. Lawrence
E. W. McClure
Baird & McGuire Inc.....G. M. Baird
Jack Varley
Baldwin Laboratories..H. W. Baldwin
Dr. C. M. Gwin
Barrett Co.....W. R. Cleary
L. N. Miller
R. C. Quortrup
Henry Barroll & Co. Inc..J. N. Davies
S. H. Bell Co.....S. H. Bell
Black Flag Co...William G. Griesemer
Breuer Electric Mfg. Co..A. A. Breuer
Buckeye Chemical & Specialty Co.
H. M. Epstein
Central Chemical Co....E. H. Ludwig
Chemical Supply Co..Henry A. Nelson
Clarkson Chemical Co..W. H. Clarkson
Clifton Chemical Co...L. B. Schwarcz
Continental Can Co.
W. F. Bredemeyer
O. G. Jakob
L. J. LaCava
R. V. Wilson
O. V. Spedden
Davies-Young Soap Co...R H. Young
Dr. R B. Trusler
Derris Incorporated...R. W. Birdsall
W. M. Boyd
R. Wotherspoon
Dethol Mfg. Co.....Earl Ament
Frank MacAloon
C. B. Dolge Co.....Lloyd Dolge
C. L. Weirich
Dow Chemical Co.....L. E. Mills
E. I. du Pont de Nemours & Co. Inc.
A. S. Slack
George J. Tombak
Expello Corporation...S. J. Dunaway
Federal Varnish Co...M. J. Flanagan
John H. Lawson
Felton Chemical Co. Inc.
H. F. Dresel
Charles Fischbeck Co. Inc.
Edward Trippe
Frederick Disinfectant Co.
Frederick Hoyt
Fritzsche Bros. Inc.....C. F. Booth
G. L. Ringel
B. F. Zimmer
Fuld Brothers Inc.....S. J. Foster
Fumol Corporation.M. J. Kammerling
General Chemical Co....J. C. Bradley
General Laboratories, Inc.
S. H. Crounse
W. A. Hadfield
General Naval Stores..W. H. McArdle
G. L Olsen
Givaudan-Delawanna Inc.
Ira J. Bennett
R. M. Stevenson
Gulf Oil Corporation.Wallace Thomas
Gulf Research & Development
Corporation....Dr. W. A. Simanton
Hercules Powder Co.....C. G. Hogg
B. H. Little
Friar Thompson
G. C. O'Brien
Dr. Hess & Clark.....H. M. Clark
R. M. Hollingshead Co.
J. S. Kemberling
Hooker Electro-Chemical Co.
John Farrand
R. E. Wilkin
H. D. Hudson Mfg. Co....P. F. Loris
M. J. Hehl
M. L. Harrison
Huntington Laboratories Inc.
J. L. Brenn
Industrial Laboratories...C. S. Mason
Innis Speiden & Co.....J. J. Hill
Koppers Products Co..J. H. Carpenter
Lambert Pharmacal Co.
Dr. G. F. Reddish
Lehn & Fink Inc..Dr. Emil Klarmann
Lowell Mfg. Co.....C. C. Allen
MacNair-Dorland Co.
Grant A. Dorland
Wayne E. Dorland
Ira P. MacNair
Magnus, Mabee & Reynard Inc.
Robert B. Magnus
Merck & Co.....Peter Dougan
Monsanto Chemical Co....F. E. Byrne
Dr. F. D. Smith
Edgar A. Murray Co.
Frank J. Hainsworth
Edgar A. Murray
Innis Speiden & Co.....C. C. Johnson
McCormick & Co.....Dr. T. J. Albert
Dr. A. E. Badertscher
John N. Curlett
L. W. Jones
McLaughlin, Gormley King Co.
P. E. Falkingham
G. A. McLaughlin
National Can Co.....L. M. Blickman
S. H. Morris
Jack M. Cross
W. R. Janney
R. S. Solinsky
Niagara Alkali Co.....W. J. Weed
O'Connor & Kremp....J. T. O'Connor
John Opitz Inc.....Charles F. Opitz
Pease Laboratories..Richard Baltzley
Miss I. Romans
Dr. H. D. Pease
S. B. Penick & Co.....Fred Rauch
Dr. Thomas Lewis
Harold Noble
S. B. Penick, Jr.
J. A. Stocks
Phinotas Chemical Co.....P. J. Walsh
John Powell & Co.....David G. Hoyer
John Powell
G. R. Rinke
Edwin B. Twyman
Dr. Alfred Weed
Reefer-Galler Inc.....M. C. Galler
S. Gold
Reilly Tar & Chemical Co.
W. G. Hirschfeld
P. C. Reilly, Jr.
William Higburg
J. L. Tildsley, Jr.
L. S. Garnham
Rex Research Corp...J. E. Armstrong
E. G. Rude
Rochester Germicide Co...W. B. Eddy
C. W. Crowell
J. A. Walsh
H. G. Provost
Rohm & Haas Co.....J. M. Graham
R. A. Lindabury
D. F. Murphy
M. J. Rolstad
The Selig Co.....Simon S. Selig
Shell Petroleum Co....Hugh R. Berry
Sherwin Williams Co...C. D. Carleton
Sherwood Petroleum Co.
W. F. Kroneman
H. C. Oscar
Victor L. Roberson
Sinclair Refining Co.....C. J. Dumas
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PYRETHRUM EXTRACT

odorless—stabilized

Two Concentrations

20 to 1 5 to 1

From direct imported flowers, we manufacture pyrethrum extracts of standard strength in deodorized petroleum base,—and stabilized against deterioration. These extracts are sold at prices competitive with ordinary extracts.

Other HAMMOND Products

Pyrethrum Flowers—Granulated ready for percolation.
Rotenone Extracts—Standardized and stabilized against deterioration.
Rotenone-Pyrethrum Extracts—Various concentrates in combinations as required.

Ask us for further information.

HAMMOND
Paint & Chemical Co.
BEACON NEW YORK

Direct Importers of
A Complete Line of

WAXES

CARNAUBA WAX
All grades—Indispensable in floor waxes and wax-base polishes

MONTAN WAX
finds use in many polishes

CERESIN WAX • BEES WAX
OZOKERITE, Etc., Etc.
used to a large extent in polishes

STRAHL & PITSCH
141 Front Street New York City

STRAIGHT SHOOTING

Let us place our experience and knowledge of world markets at your disposal.

CHEMICALS
INSECTICIDES
OILS—WAXES

H. H. ROSENTHAL CO., INC.
25 EAST 26th ST. NEW YORK, N. Y.
Cable Address: RODRUG, N. Y.

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LIQUID
LATHER
POWDER
SOAP DISPENSERS

Serving the Soap Manufacturer and Jobber since 1906

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215 FOURTH AVE., NEW YORK CITY

R. J. Prentiss Co. Inc...R. J. Prentiss
R. B. Stoddard
Skinner & Sherman Inc.
Dr. B. G. Philbrick
Solarine Co.....J. F. Beatty
L. Sonneborn Sons Inc...R. W. Bjork
Dr. Erich Meyer
H. C. Green
Edgar E. Brand
R. J. Kaufmann
Stanco Incorporated.....W. J. Zick
F. C. Nelson
Standard Oil Co. of Ohio..R. O. Cowin
Tanglefoot Co.....W. J. Wagner
J. A. Tumbler Laboratories
L. J. LaBrie
Joseph Turner & Co...Chas. Hollwedel
W. D. Merrill
van Ameringen-Haebler, Inc.
A. L. van Ameringen
J. R. Watkins Co..Dr. E. G. Thomssen
West Disinfecting Co...W. Auerbach
Robert C. White Co.
Robert C. White, Jr.
Dr. Robert C. White
White Tar Co. of N. J.
H. W. Hamilton
Williams Sealing Corporation
R. L. Wood
Wizard Incorporated..L. D. Benedict
Wright, John H.....John H. Wright
Zonite Products Corp...C. E. Enteman

Guests

Hon. S. Davis Wilson, Mayor of Philadelphia, Philadelphia, Pa.

Mr. Frank Blair, President of The Proprietary Association, Washington, D. C.

Dr. F. L. Campbell, Associate Professor of Entomology, Ohio State University, Columbus, Ohio.

Dr. Alvin J. Cox, Chief, Division of Chemistry, Dept. of Agriculture, State of California, Sacramento, Calif.

Mr. James B. Fry, Director of Bureau of Standards, Commonwealth of Pennsylvania.

Dr. George E. Grattan, Secretary Advisory Board, Dept. of Agriculture, Ottawa, Canada.

Dr. E. L. Griffin, Senior Chemist, Insecticide Division, Food & Drug Administration, Washington, D. C.

Dr. H. B. Haag, Professor of Pharmacology, Medical School of Virginia, Richmond, Va.

Dr. L. A. Hawkins, Bureau of Entomology & Plant Quarantine, Dept. of Agriculture, Washington, D. C.

Mr. James F. Hoge, General Counsel, Proprietary Association, New York City.

Dr. William Hunsicker, Director of Public Health, Philadelphia, Pa.

Mr. Ray Schlotterer, Secretary, Allied Drug & Chemical Division of New York Board of Trade.

Dr. Louis Tuft, Director of Bureau of Laboratories, Commonwealth of Pennsylvania.

Mr. W. F. Heintzelman, Commonwealth of Pennsylvania, Philadelphia, Pa.

Dr. V. Nisbet, Commonwealth of Pennsylvania, Philadelphia, Pa.

Mr. J. C. Booser, Dept. of Standards, Commonwealth of Pennsylvania, Harrisburg, Pa.

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Calif. Insecticide Law

(*From Page* 117)

the book to the judge. When the book was returned the judge told Sato that in the future if any Japanese was brought before him for shooting robins if his name was in that book he would be fined, and if it was not there Sato himself would be fined. With that story the judge won. Our law violator was warned and has given us no more cause for complaint.

When an eastern company wishes to sell its economic poison products in California, it should select an agent familiar with California law or send its representative to one of our offices to learn of the legal regulations. Before sending trunks full of literature it would be better to ascertain if it, as well as the material, is acceptable under the law.

In conclusion let me say that more and more government and business are partners. Work can progress only as it is supported by the people influenced, and in my opinion the word "government" should be synonymous with "cooperation." Too much law enforcement may be as bad as too little. Increasingly broad control of business where it is tempered with broadmindedness, leadership and justice has made for orderly progress and profit. For a long time those in California engaged in the manufacture and sale of economic poisons have believed that they were better off with government supervision. Most registrants feel that our program is their program as the laws were sponsored by the industry.

The Division has recently issued a memorandum entitled "Information Regarding Economic Poisons" which is an attempted clarification of Article 3, of the California Agricultural Code. An attempt has been made to bring together in one place all requirements relating to the particular subject so that, when they are complied with, one may know that he is in accord with California law. Copies of this are available to anyone who cares to send his name and address.

Toxicity of Rotenone

(*From Page* 112-D)

derris is several times that set for arsenic and lead. Actually, while some of our feeding tests suggest that at levels somewhat approaching those which might be encountered practically if the diet consisted entirely of derris-sprayed food, derris should have little if any deleterious effect; further comparative experimentation employing derris, and other insecticidal agents, is desirable. Incidentally interpretation of such laboratory results in terms of what one might expect in the case of humans eating an average diet is particularly difficult, because the conditions are so different; it is almost impossible to approximate the quantity of insecticidal residue which the ordinary human will ingest or the regularity with which it is taken over a period of time.

Table 2.

Acute Toxicity of Derris and Other Substances for the Rabbit by Oral Administration

Preparation	*Lethal Dose (MGM. X KGM.)*	*Ratio of Lethal Dose to Derris As 1*
Rotenone (7)	3000	1
Derris No. 4 (4)	600	5
Lead Arsenate (9)	100	30
Nicotine (10)	30	100
Mercuric Chloride (11)	25	120
Strychnine (10)	4.24	700

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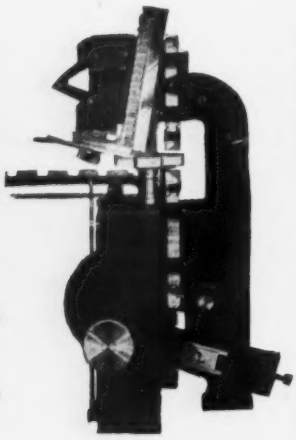

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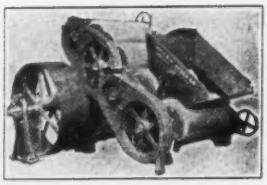

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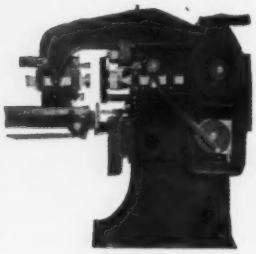

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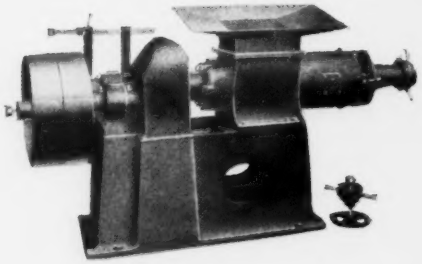

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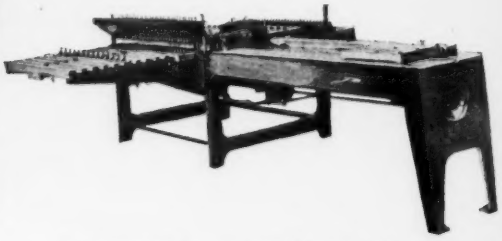

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